GIRL, WIFE AND MOTHER

A GUIDE FOR EVERY GIRL AND WOMAN IN ALL IMPORTANT PERIODS OF LIFE, BEGINNING WITH THE TRANSITION FROM GIRLHOOD TO WOMANHOOD

WRITTEN IN PLAIN AND SIMPLE LANGUAGE

IT CONTAINS

Knowledge Every Young Girl Should Have
Knowledge Every Woman Should Have
Knowledge Every Young Wife Should Have
Knowledge Every Mother Should Have, and Should Impart to Her Daughter

By MYER SOLIS-COHEN, A.B., M.D.

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Girl, Wife & mother

GIRL, WIFE AND MOTHER

A GUIDE FOR WOMEN IN ALL IMPORTANT PERIODS OF LIFE, BEGINNING WITH THE TRANSITION FROM GIRLHOOD TO WOMANHOOD, AND INCLUDING CHILDBIRTH AND THE MONTHS PRECEDING AND FOLLOWING IT; WITH DIRECTIONS FOR THE CARE OF INFANTS

—— BY ——

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PREFACE

IN this book the author has endeavored to present information that every woman should possess in order to preserve her health and vigor and that of her children. Few mothers have sufficient knowledge to instruct their daughters properly. The physician seldom is given the opportunity or takes the time to teach well people how to live. For her guidance, therefore, a woman must depend upon reliable articles and books written especially for her.

This book does not attempt to teach treatment of disease; its object is to tell girl, wife and mother what to do and what to avoid doing in order that she may lead a healthy life. It is written in plain and simple language, with an avoidance of medical terms, so as to be easily understood. All directions are specific and definite that they may be readily followed.

MYER SOLIS-COHEN.

November 1, 1911.

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CHAPTER I.

KNOWLEDGE THE GREATEST FACTOR IN PRESERVING HEALTH.

Popular Instruction. Prevalence of Erroneous Notions. Learning the Truth. Education for Motherhood.

The medical world is beginning to realize that the aid of the people themselves is required to prevent disease. The physician is called in only after a person has fallen ill. Then it is too late for prevention. Seldom, indeed, do persons in health come to a physician for advice. There is need, therefore, of other means of imparting information, such as books, articles in newspapers and magazines, lectures, pamphlets, exhibitions and societies formed for the purpose of combating disease.

Little headway against tuberculosis was made until the people were taught its nature, prevention and cure, and joined associations for stamping it out. Questions concerning the milk supply, the care of infants and school children, the prevention of social diseases, and other matters, are

being solved similarly. In many cities, for instance, public lectures on the care of the baby are given to mothers, being sometimes supplemented by personal instruction in the homes.

The Prevalence of Erroneous Notions.

The amount of ignorance that exists to-day despite all these measures for public enlightenment is really surprising. One would scarcely believe how many false ideas are prevalent as to the nature, abnormalities and hygiene of the different epochs of a woman's life. Even more incredible is the number of seemingly intelligent women who believe and repeat as facts the impossible nonsense they hear. The light of civilization that dispelled most of the superstitions of the dark ages seems never to have reached the old wives' tales. In regard to much that concerns herself and her children, the average woman is woefully ignorant, not because she does not desire knowledge, but because her usual sources of information are other women as ignorant as she.

Pitiful indeed is the position of the young wife. She soon finds herself surrounded by acquaintances and friends, all eager, under the guise of giving sound advice, to pass on to her the traditions of their sex. With what self-satisfaction

does each grasp the opportunity to pose as an oracle! But, bad as they are, the foolish fables are not the worst things that women whisper. Before many months the bride learns, often for the first time, the baseness of many of her married friends, who in confidential chats sully her mind with degrading suggestions. Especially on becoming pregnant is she forced to realize their hardness, their hollowness and their heartlessness. She is made acquainted with a new philosophy of life, based on selfishness, which ignores the primary object of marriage.

The strong, womanly woman, who remains true to herself and to her sex, withstanding the assaults of the vicious, must still run the gauntlet of the ignorant. Her so-called friends will repeat to her all the tales they have heard concerning her condition, never neglecting to include and emphasize all its complications. They portray pregnancy as a state of abject misery, beset on every hand with the gravest risks. Folk-lore, handed down from time immemorial and absolutely wanting in fact, is recited with a positiveness that would be ludicrous were it not pathetic.

The crowning horror they herald is the approaching confinement. Exaggerating every phase, making the pain and the danger many

times the reality, they take delight in dwelling on the accidents and abnormalities, no matter how rare, and in describing with all their gruesome details the fatal cases they have known. Not infrequently they even profess to detect in the poor woman they address symptoms similar to those shown by the patients that died.

Learning the Truth.

The young wife, who at such a time is in need of encouragement, sympathy and support, is thus cruelly frightened by the falsehoods uttered by her friends, who no doubt are more often thoughtless and ignorant than cruel and deliberately deceiving.

Strange as it may seem, a woman seldom appeals to her physician or discusses with him the things she hears, although she could thus readily learn the truth. The reader is strongly urged to consult her physician whenever in doubt. She will always find him willing and glad to instruct her.

As an additional source of information this little volume has been written, so that any woman can always readily obtain the facts and not be at the mercy of her ignorant friends. In it the various periods of a woman's life are explained,

beginning with the transition from childhood to womanhood and continuing through pregnancy and childbirth to change of life. The hygiene and the physiology of each period are both given, so that a woman will not only know how to live, but will understand the reason for everything she does. While teaching chiefly how to keep well and avoid sickness, the book also tells how to recognize dangerous symptoms and what to do in emergencies before the doctor comes.

Throughout the whole of life, knowledge is one's greatest safeguard against disease. Much avoidable injury is done by the ignorant woman who frequently imagines that suffering is her natural lot, and often views with complacency symptoms of the gravest import. How many deaths from cancer could have been prevented had the patient recognized as important the first signs of her trouble and not put off mentioning them until all chance for cure had passed!

Education for Motherhood.

It is not always for her own health alone that a woman must care. Often in her hands is the regulation of other lives. On the inexperienced mother, therefore, a great responsibility rests. As an eminent gynecologist has remarked:

"The most important factor in the development of a healthy girl baby into a healthy young woman is an intelligent mother, and no more urgent problem calls for solution to-day than that of securing adequate training for the duties of maternity. Maternal instinct and maternal love plus family traditions are not sufficient equipments for rearing a healthy family. They must be guided by maternal intelligence. . . The health of the growing girl begins with the education of her mother."

Education for motherhood occupies a prominent place in this book. Instruction is given in the care of the baby, including its food, clothing, bathing, sleep, rest and exercise. Of equal importance to the wife and the mother is an allied subject that in the past has received too little attention—the protection of girls and women by their enlightenment on sexual matters. No longer are ignorance and innocence regarded as synonymous. The former, in fact, is now believed even to endanger the latter. Many mothers, however, who recognize the need of instructing their children in regard to sex and reproduction, are at a loss to know how to approach the subject. They feel almost helpless when they consider their own insufficient knowledge. What a girl has a

right to know forms the basis of several chapters, easily told in the simple manner that a mother might well adopt herself in presenting the matter to her children. Under the headings "The Guarantee of Safety in the Marriage Contract" and "Providing for the Health of the Unborn" is plainly stated what a woman has a right to demand before entering marriage, in order that she herself may remain undefiled and her children be brought into the world sound in mind and in body.

The reader must not imagine herself competent to detect or treat disease, whether occurring in herself or in her children. She should be careful always to consult her physician at the first signs of illness and to follow strictly his advice. The book, however, acquaints her with the information that every woman should possess in order to keep well and strong and rear a healthy and happy family.

CHAPTER II.

THE GENERATIVE ORGANS.

Sex Throughout Nature. Female Sexual Organs in Plants and the Lower Animals. The Uterus or Womb. The Vagina. The Appendages.

Sex Throughout Nature.

All living matter possesses the power of reproduction. This is one of the characteristics that distinguish it from non-living matter. In the higher forms of life, both animal and vegetable, a special portion of each organism is set apart for this distinct purpose. The elements necessary to the formation of a new plant or animal are as a rule not all found in one individual, but are divided between two, which are known respectively as the male and the female. A union of these two elements is usually required to form the new organism. The offspring develops from one element, the female, as soon as the male element is added to it. This distinction of sex occurs in flowers, the stamens representing the male, the

pistil the female. Willow trees show still further sexual differentiation, some producing only those catkins, or pussy-willows, which consist entirely of pistils, and others blossoming only into stamen-bearing catkins. In the familiar corn or maize the "tassel" is the male flower, the "silk" the female.

Female Organs in Plants and the Lower Animals.

In the center of every flower stands the pistil, the upper portion forming the style and the stigma, the deep-seated portion being the ovary, which contains the ovule. When the flower is fertilized by the male element—the pollen—the ovary begins to develop and to form seeds, which, when planted, put forth leaves and stalks and finally bear flowers, just as did their parents. The pod with its peas or beans, and the apple or pear with its seeds, represent the ovary of the plant.

In the animal kingdom sexual organs are possessed by even the lowest members. The ovary of the fish, for instance, is familiar as the roe. It contains countless ova which, when deposited, are known as spawn. These ova, upon being fertilized, become the eggs, from which later the baby fish are hatched.

In birds the ovum is fertilized while in the ovary, then being laid in the form of an egg, to be hatched outside the mother's body. Every woman who has dressed a hen has seen the ovary with the unfertilized ova and the fertilized eggs.

In all the lower animals the embryo, as the unborn offspring is called, develops and obtains its food outside the parent's body. The chick, for example, lies within an egg, nourished by the white and the yolk, and protected by the shell.

In the higher animals the offspring must obtain its nourishment from its mother while it is developing as well as after it is born. It must also be protected by her body. The organ in which the embryo lies, while being formed into a living animal, is called the uterus or womb.

The Uterus or Womb.

In woman the uterus, or womb, is a hollow organ, shaped like an inverted pear, about two inches and a half long, one inch and a quarter wide, and three-quarters of an inch thick. The walls are composed of thick muscles enclosing a triangular cavity just big enough to hold the contents of about half a teaspoonful. The uterus ends below in a neck, called the cervix, traversed by a narrow canal, called the cervical canal, an

inch and a half long. The upper end of this canal, where it opens into the cavity of the uterus, is called the internal os or mouth; the lower opening into the vagina is known as the external os or mouth. The body and the neck of the womb are both lined with a membrane containing glands, which secrete mucus.

The Vagina.

The neck of the womb projects into a tube, called the vagina, about four inches long. The walls of this tube lie normally in contact, but are capable of being stretched to a considerable extent. The vagina is also lined with a mucous membrane containing glands that secrete mucus, which acts as a lubricant. It opens externally, but in a maiden is partially covered by a thin membrane called the hymen.

The Appendages.

The uterus is supported by means of ligaments fastened to each side and attached to the bones. It is slung between the two ligaments just as a person is supported in a hammock.

Along the upper border of the ligaments lie the oviducts or Fallopian tubes, which open into the womb at the top on each side. They are

narrow tubes, about four inches long, running outward from the corners of the womb and opening like funnels at their other extremities, where they are in contact with the ovaries, connecting them with the womb. They also are lined with mucous membrane.

The ovary is like an almond in shape and size, and hangs in the fold of the ligament just below the Fallopian tube, at its distal end. It is a gland secreting ova, or eggs. It probably also secretes a substance necessary to woman's health, about which not much is known.

The uterus and its appendages, as the tubes and ovaries are called, lie in a bony basin, called the pelvis.

CHAPTER III.

ADOLESCENCE.

The Changes that Occur at Adolescence. The Influence of Climate and Race. Mode of Life and Heredity. Delay in the Appearance of Menstruation. Mental and Spiritual Changes at Puberty. Periods of Storm and Stress and of Doubt. Alienation and Reconstruction. Growth Without Definite Transitions.

In the child the sexual organs are but partially developed and remain inactive. At about the end of the fourteenth year, however, they begin to functionate, and the girl becomes capable of reproduction. The period at which this occurs is called puberty or adolescence.

In addition to the changes in the generative organs, other alterations take place in girls at this period. The figure begins to assume the aspect of womanhood, the breasts become developed, the pelvis and abdomen enlarge, the voice undergoes a change, hair appears in the armpits and about the pubic region, and the menstrual flow, or monthly sickness, is established.

The Influence of Climate and Race.

Although puberty usually occurs about the thirteenth or fourteenth year, it may appear earlier or later, its onset being influenced by climate, race, modes of life, and heredity. In tropical climates it may occur at nine or ten years of age; in Egypt and Sierra Leone it occurs normally at ten years. In these climates it is said not to be an uncommon thing for a girl to be a mother at twelve.

Puberty occurs late in the cooler climates, and among the peoples normally inhabiting them. In Lapland, for instance, menstruation does not appear until the eighteenth year. The Teutonic and Anglo-Saxon races while in their European homes arrive at adolescence oftenest when fifteen years of age. In the United States and Canada puberty usually occurs about the fourteenth or fifteenth year.

In Hungary the three races, Slavonic, Magyar and Jewish, living side by side in the same climate, reach adolescence when sixteen, fifteen and thirteen years of age, respectively. Hindu girls of Calcutta and negresses of Jamaica, also living in the same climate, begin menstruating at the eleventh and fifteenth year, respectively. Some writers state that blondes mature earlier than

brunettes. Menstruation among Jewesses begins a year or two in advance of other races in this country. In negroes and Creoles the monthly sickness appears earlier than in white people.

Mode of Life and Heredity.

The influence of city life, with its excitement of parties, theatres, association with the other sex, and sexual temptations, tends to hasten the oncoming of puberty.

It is said that diet has an influence, that stimulating foods, such as pepper, vinegar, mustard, spices and condiments generally, tea and coffee, and an excess of animal food, have a clearly appreciable influence in prematurely bringing about this condition.

Heredity may affect the time of puberty, it being a matter of common observation that in some families menstruation may begin early through several generations.

Delay in the Appearance of Menstruation.

Although other signs of puberty may occur at the usual time, the menstrual flow is sometimes late in making its appearance. This is usually due to a condition of anemia or impoverished blood, caused by want of sufficient sunlight, fresh

air, exercise, good food and sleep, and by a too close application to study.

In the opinion of Professor Kelly, of Johns Hopkins University, it is unreasonable to anticipate normal puberty in the weak, poorly nourished, and imperfectly developed girl who has been permitted to violate the laws of health throughout childhood. He regards it useless to concentrate attention upon one period of a girl's life and to attempt by over solicitude at this time to remedy the effects of early mistakes in hygienic living and hereditary tendencies.

Mental and Spiritual Changes.

As womanhood unfolds, other changes occur besides those of the body. The girl is in a state of restlessness and of nerve irritability; her mind is confused with feelings of undefined longings and desires, and of vague dissatisfaction with all about her. She often tends to become morbid, fanciful, self-conscious and supersensitive, and her feelings are easily hurt.

During adolescence a marked event in the spiritual life frequently occurs, which is usually associated with apparently sudden changes of character. This phenomenon, known as conversion, is confined almost wholly to the years between

nine, or ten, and twenty, between the innocence of childhood and the fixed habits of maturity, while the girl is yet impressionable and has already capacity for spiritual insight.

Sometimes the attainment of spiritual life is simply a process of even and continuous development. According to Dr. Starbuck, late in childhood, at the beginning of adolescence, there is a more or less definite clearing of the religious atmosphere. The ideas of God and duty and religious observance, which have been external to the child during the earlier years, now take root in her life and have a vital significance. Heretofore they have been embodied in precept or custom, or in her own playful imagination. Now they have begun to be her own.

Periods of Storm and Stress, and of Doubt.

Nearly three-fourths of all girls at this time go through a period of storm and stress, which manifests itself in a number of ways. There may be present a sense of incompleteness and imperfection; brooding, depression, and morbid introspection; distress over doubts; friction against surroundings; effort to control passion. The helplessness that comes with storm and stress is often cured by inducing wholesome activity.

About half the girls also go through a period of doubt. If parents and Sunday-school teachers would realize this mental attitude, and meet it with tact and wisdom, they could often guide the girl safely through this difficult epoch in her spiritual life.

Alienation and Reconstruction.

As it is, about a third of all women pass finally through a period of alienation, due, according to Starbuck, to doubt, storm and stress, ill health, environmental conditions, necessity of gaining relaxation, the necessity to preserve in one way or another the wholeness of the individual life, and the pleasure that comes from the sense of freedom.

The close of adolescence is marked by the period of reconstruction. This reconstruction, Starbuck says, consists either in working out one's belief and faith independently of that of other people, accepting one's own point of view and beginning to live it and be happy in it, or in coming back to the old forms and dogmas of childhood and putting new life into them.

Growth Without Definite Transitions.

Sometimes instead of sudden conversion, a growth without definite transitions occurs. This

is favored by religious surroundings in childhood; by keeping children reasonably free from dogma which they are incapable of assimilating; and by carefully meeting the needs of the child at every point in its development. It is more likely to occur when there is a certain mixture of faith and doubt continually and a sufficient degree of freedom to question all things to insure a clear horizon, and enough trust and insight and poise of spirit to remain firmly rooted in the heart of religion.

CHAPTER IV.

THE HYGIENE OF PUBERTY.

Air, Food, Bathing, Sleep. Avoidance of Overwork and Excitement. Preparing the Girl for Puberty. A Mother's Confidence.

The hygiene of puberty should properly be a continuation of the hygiene of childhood. Adolescence produces the least trouble when the girl has observed the laws of health from infancy. It is between the ages of twelve years and a half and fourteen and a half, however, that the greatest growth occurs. Unfortunately, as a rule, the strength does not increase proportionately. During this period, therefore, a girl frequently neglects to hold herself erect, and experiences difficulty in concentrating her attention.

Air, Food, Bathing, Sleep.

Fresh air is essential during these years. Much time should be spent out of doors, in walking and playing games that do not fatigue or excite. Contests, however, are to be avoided.

Proper food in sufficient quantity is necessary to provide material for the rapid growth.

A cold hygienic, stimulating, or hardening, bath should always form part of the morning's toilet, especially at this period. It may be taken as a cold rub or sponge, a shower, or a plunge. It is of very brief duration—a few seconds merely, and is followed immediately by a brisk rub with a dry, rough towel until the skin is in a pink glow. Twice a week a warm cleansing bath with soap should be taken, best immediately before retiring, and always followed by a quick rub with cold water to prevent taking cold.

No less than nine hours of sleep are required. The bedroom windows should be opened widely both in summer and in winter. If a girl goes to bed wholesomely tired she is likely to fall promptly into a sound sleep undisturbed by dreams. She must not be permitted to lie abed after waking in the morning.

Avoidance of Overwork and Excitement.

Overwork in school, especially in an ill ventilated, unhygienic building, is to be avoided. Naturally, some of the hours out of school must be devoted to study; but if every other available minute is taken up with household duties and

practicing music, no time is left for exercise in the open air. The mental and physical strain of several consecutive hours at the piano is distinctly harmful. Long periods of sewing on the machine are also considered objectionable. Light duties, however, give a girl something to occupy her mind and take her thoughts off herself.

It is well to keep the girl free from excitement and especially from the strain and stress of emotional life. Her thoughts should be diverted from sexual matters, all associations and modes of life having such a tendency being discouraged. A wise supervision over books and companions is important. By encouraging outdoor life and interests, allowing healthful amusements and judicious exercise, both mind and body are prevented from running into morbid states. There will then be less tendency for the girl's thoughts to become centered upon herself and upon her sexual organs. The development of improper habits will also thereby be rendered less likely.

The hygiene of the menstrual period itself is discussed in a succeeding chapter.

Preparing the Girl for Puberty.

The importance of a duty that many mothers shirk is thus presented by Dr. Jane Walker:

"Mothers and guardians of girls should obtain their entire confidence with regard to their monthly functions; it will save much misery both to body and mind.

"Here let me say that it is the duty of a mother to be open with her girl in this connection. When, from the changes that are occurring in the girl's body, her mother suspects that menstruation is about to take place, it is her duty to tell her what lies before her. What she will say will vary with the daughter's age, and also with the extent of the mother's own knowledge. If the latter has some acquaintance with physiology and natural science, she will be in a better position with regard to this question than one who has had no scientific teaching at all. Probably the simplest plan is to draw the girl's attention to the various signs of approaching womanhood, and then to tell her that this is one of them. In whatever way the communication is made, it must not be omitted, for no one can realize the shock endured by a perfectly ignorant girl on experiencing her first monthly period. Many of the ills suffered in later life are traceable to neglect and ignorance at this time. Moreover, if the mother does not herself tell the girl, someone else will probably do so, and the communica-

tion may be made with coarseness, which will have an injurious effect on the girl's character. A mother should at this period of her life be a girl's best friend, with whom she feels there can be no reserve."

A Mother's Confidence.

Dr. Button emphasizes that, as the girl approaches puberty and is instructed regarding what is about to occur, it must be impressed upon her that her mother and her physician are her confidential advisers, either of whom she can freely consult regarding any trouble with the menstrual function, without being considered at all immodest; that she may discuss the subject freely with her mother or physician for the purpose of information and advice, and maintain her dignity and modesty; but that to discuss it lightly with companions, in jest, is improper, immodest and vulgar.

CHAPTER V.

SEXUAL EDUCATION.

An Educational Question. Instilling the Truth into the Girl's Mind. A Woman's Right to the Facts. A Mother's Responsibility. Teaching the Young. Solitary Vice.

Several years ago at their annual meeting the physicians of America held a symposium on the Duty of the Profession to Womankind. Among the topics discussed were "The Protection of the Innocent," and "The Guarantee of Safety in the Marriage Contract."

An Educational Question.

"The question of protecting the innocent," declared Dr. Howard, of Baltimore, "is neither medical nor legal in the strict meaning of those terms, but educational. There is only one remedy for all acts whose basal cause is ignorance, and that is education. In this matter the objects for attack are the mothers and teachers; the subjects for education are the young girls. . . .

"There are thousands of girls in the upper and middle classes who, while not innocent, are ignorant of the primal laws of Nature. Many have tried to get the information their adolescent longings crave; many have striven to seek out the mystery after having been snubbed or denied by their own mothers. If the opportune moment arrives, and it generally does, the girl falls into the salacious seductiveness of some vicious minded woman, the seeds of false sexual education are sown, and their growth forever crowds out the tender tie between mother and daughter, and, as the mother dissembled, so will the daughter lie.

Instilling the Truth Into the Girl's Mind.

"As I have suggested, the truth as we know it, should be instilled into the mind of every girl. I should commence when they are very young by teaching them the beautiful laws and arrangements of Nature in the reproduction of plants and flowers, emphasizing the sex differentiation. Gradually, as she mentally develops, she should be led along Nature's path up to the reproduction of birds, then animals; explaining their mating habits and the reasons therefor. When Nature was giving the girl the first early signs

of her own reproductive power she should have the whole truth plainly told her. Now the girl will see the beauty, the wonderful, the ethical side of a normal sexual feeling, and sensual sensation will be suppressed. She will seek for no mysteries to dream about, have no morbid curiosity to lead her to experiment, but be in the normal condition of a healthy woman who knows and will be master of natural passions until her time of mating comes."

Dr. Nelson, of Chicago, stated his belief that the majority of the girls who fall, do so because of want of instruction. He said that even physicians fail to instruct their own children as they should before puberty; they have left it for the teacher, the Sunday-school teacher, the pastor, and these, in turn, have left it to someone else, and as a consequence the children get their education along this line on the street. Education in this subject, he said, must be commenced in the family; it is the parents' business to teach their children.

A Woman's Right to the Facts.

At an open meeting held in Philadelphia about a year ago the question was discussed: "Have Our Women and Girls a Right to the Facts Re-

garding Social Disease? If so, How Shall They Best Obtain Them?"

The president of a Boys' and Girls' Club said: "It appears to me that we are discussing the question upon the false supposition that women and girls are not at all conversant upon this subject, and we ask whether we shall go to women who are happy in their ignorance with the unwelcome information in our possession. I am not here to speak of a few selected protected lives, the little class in our community which has grown up under very favorable conditions, but of the population at large, including our girls and women to the number of three quarters of a million. These girls and women know this subject. Even those girls and women who seem to be too sheltered to have such information are well posted with such information as can be given them from their acquaintances and obtained from the conditions of life under which they live. They are constant learners of falsehood and of statements which are debasing and degrading, and which vitiate for them that which should be pure and beautiful. . . .

"Wherever I have come close to the sufferers through ignorance of the facts concerning social disease there has been a demand that the facts be

furnished. One young girl about to become a mother, who came to us very recently, when told the facts as we were able to give them to her, said, 'Go tell other girls,' and this was her constant cry throughout her illness."

A Mother's Responsibility.

Speaking from the standpoint of the mother, a prominent woman said: "I believe the solution of the whole problem lies with the mothers; that when they are awake to their duty and responsibility, are ready to put aside their mawkish sensibility and silly reticence and treat the laws of God and Nature with honesty and innocent simplicity, they will soon find themselves in control of the social evil and all that the term implies. The outcome rests in the mother's training of her boys, but no less in her enlightenment of her girls. The girls of naturally impure tendencies, of whom there are but few, should, of course, be warned of the evils lurking to ensnare them, but no less should the girls that are innocent and pure. The great industrial revolution has affected the community nowhere so much as in the daily life of young girls. They are thrown out of the home by hundreds, thousands, and subjected to most subtle temptations, often from

those who should have guarded their innocence. The mother of fifty years ago might be pardoned if she did not tell her daughters of the evil which is in the world, because life was domestic and shielded. The reticence of the mother to-day is worse than inanity—it is crime."

Teaching the Young.

Rev. Floyd W. Tomkins, D.D., in the same discussion remarked: "There is no question but that we have been afraid, and the result of our fear has been spreading sorrow. Why may we not have our women teaching the young women and girls whom they meet? Why may we not have teachers calling their girls together in their homes? Why may we not have ministers even from time to time organizing classes taught by some woman physician? And, above all, dear friends, why may we not have the teaching in the public schools embody this matter, with women physicians for girls, and men physicians for boys, teaching them concerning these things which must be known if we are going to save the future generation?"

Solitary Vice.

There is still another danger from which the girl must be protected—the habit of solitary vice.

Failure to warn the child of this is usually due to the parent's fear of suggesting something of which the child may have no previous knowledge. Few realize how prevalent is this evil, and how many the opportunities for learning of it. Schools, particularly boarding schools, have long been the chief breeding places for bad habits. A servant, and especially the nurse, is frequently the instructor. A child may accidentally produce a pleasurable sensation and voluntarily repeat it without being aware that she is doing wrong. This is especially liable to occur in the presence of uncleanliness, or of chafing, or of irritation due to seat worms or some other cause, or of any physical defect. Children can dissemble so skilfully that they may never be suspected. It is an injustice to the child not to warn her of the pitfalls into which she may stumble. Perfect frankness regarding so frequent a cause of general ill-health, chronic invalidism, and sometimes even insanity, will save a girl much physical and mental suffering as well as moral loss. Even though the results may not be as grave and irremedial as is often thought, they are serious and often lasting.

Exercise in the fresh air, proper food, the daily bath, are all factors in both the prevention and cure of this unfortunate habit.

CHAPTER VI.

THE MONTHLY PHENOMENA

Ovulation. The Physiology of Menstruation. The Menstrual Flow. Other Menstrual Symptoms. The Hygiene of Menstruation.

Ovulation.

The ovary has been described as a gland secreting eggs. These eggs or ova develop one at a time. At regular intervals the most mature egg or ovum swells to the size of a pea and bursts through the wall of the ovary. This occurrence is known as ovulation, and takes place once a month during the period from puberty to the menopause. This period lasts on the average from the fourteenth to the forty-fifth year, although it has begun as early as the ninth and has ended as late as the fifty-ninth year. When the ovum is discharged from the ovary, it enters the funnel-shaped outer end of the Fallopian tube and travels through this tube into the uterus, the passage probably taking about a week.

The Physiology of Menstruation.

About the same time the ovum is discharged, a change takes place in the lining membrane of the womb, which becomes swollen and congested, due to an increase in the number and size of the blood-vessels.

If the ovum, in its journey through the tube, should be impregnated by a spermatozoon or male cell, which has worked its way up from the vagina, it becomes attached to the wall of the uterus. When this occurs the swollen and congested mucous membrane continues to develop and helps to form the coverings for the ovum or egg with its contained embryo or unborn child. If, on the other hand, the ovum is not impregnated, the new and dilated blood-vessels rupture, filling the uterus with blood. The uterus thereupon contracts and expels the blood. This monthly discharge of blood from the womb is known as menstruation.

The onset of menstruation is the principal event of puberty. It begins in this country at the fourteenth year, the time of its first appearance being influenced by the factors already mentioned. The menstrual flow usually ceases about the forty-fifth year, but it may stop before a woman is forty. On the other hand, it often

continues beyond the forty-fifth year. The period at which it ceases is known as the menopause or "change of life."

The Menstrual Flow.

The menstrual discharge at the beginning consists of the mucous secretion from the glands of the uterus and vagina, streaked with blood. As menstruation becomes established, the flow is composed of pure blood mixed with a little mucus and some cells. With the subsidence of the flow, the blood diminishes and the mucus is increased. The discharge is dark in color. As a rule it does not clot. A peculiar odor is imparted to it by the secretions of the glands of the vagina.

The normal duration of the flow is from two to six days. It rarely is less than three days. The length of the menstrual period varies in different persons. That duration which is habitual in an individual woman becomes the normal for her and usually remains unchanged throughout her menstrual life.

The amount of fluid discharged varies from two to eight ounces. It is seldom measured accurately. Instead, it usually is estimated by the number of napkins worn in twenty-four

hours and is considered excessive if the napkins must be changed more than three times a day. The flow is greatest during the first two days and then grows gradually less until it ceases. After the first few months a standard becomes fixed for each individual, from which variations seldom occur.

Other Menstrual Symptoms.

At the time of the menstrual period, frequently preceding the flow by a few hours or a few days, a woman experiences a feeling of weight and heaviness in the generative organs, caused by their congestion and swelling, which amounts often to pain and extends through the back and thighs. There is also a state of more or less nervous excitability, depending upon the woman's temperament. A nervous person, as a rule, is made worse at such a time. The breasts usually swell and may even secrete milk. The neck becomes enlarged through the swelling of a gland that lies just above the breast bone. Sometimes the tonsils also become swollen; a singer may thus lose her voice at such times. The heart usually beats more quickly and forcibly. The skin becomes redder from an increase of blood and may occasionally be flushed. Dark rings appear un-

der the eyes and brown patches, known as liver spots, may show upon the skin. Even eczema and pimples have appeared or have been made worse. Headache, depression, and disinclination to exertion are common symptoms. Pains in the joints and eye strain frequently occur. Any suffering to which a person is subject is usually aggravated at such a time. Severe pain is an indication that there is something wrong with the general health or with the local condition. The symptoms in some cases are relieved by the establishment of the flow, in others they are increased by it.

Twenty-eight days usually elapse from the beginning of one menstrual period to the beginning of another. The menstrual interval, however, may vary within the limits of health. Irregularities often occur when the general health is poor and when certain diseased conditions are present. The interval between the periods may be irregular for a little while after the first occurrence of menstruation, and even later it may be a day or two longer or shorter than usual.

The Hygiene of Menstruation.

A healthy girl or woman need make no change in her normal hygienic habits during the men-

strual period. As at other times, she should bathe daily, but may substitute a cold rub for the cold plunge bath. The underclothing, of course, are to be removed at night as usual, despite a common ignorant notion to the contrary.

Rest during menstruation is neither necessary nor desirable in healthy persons. It may even prove harmful by directing attention to the pelvic organs and through mental influence producing congestion there and accentuating all the symptoms that commonly occur at such times. Women in poor health, on the other hand, especially when nervous and subject to mental disturbances, often do require rest and quiet while menstruating, sometimes in bed. It is always unwise, however, to indulge in excessive exercise. A woman must be careful during this period to avoid heavy lifting, over-fatigue in walking, too long standing, riding a horse or wheel, dancing, and participating in violent sports.

In regard to the mental and nervous symptoms that may occur at such a time, Dr. Walker gives the following excellent advice:

"Watch yourself carefully during these periods, and if you observe that you are unusually irritable, keep a tighter grasp on your self-control and try to appreciate the fact that you are not quite

your best self. If the world looks dark and people appear unfriendly, remember that you are being influenced by your physical condition, and do not pass judgment until you are feeling more nearly normal. You will then generally find that the world is just as bright and your friends are just as loyal as you had believed them before."

CHAPTER VII.

THE DISORDERS OF MENSTRUATION.

Causes, Symptoms and Treatment of Absent Menstruation. Sudden Checking of the Menstrual Flow. Scanty Menstrual Flow. Profuse Menstrual Discharge, or Flooding. Two Alternatives. Vicarious Menstruation. Dysmenorrhea or Painful Menstruation: Causes; Treatment. Management During the Period.

In addition to the slight disturbances that frequently occur during menstruation, certain abnormalities are not infrequently encountered. Menstruation may be absent or irregular in its appearance. The flow sometimes is scanty, at other times profuse, and it may be accompanied or preceded by pain.

Causes of Absent Menstruation.

Menstruation has been absent in the sense that it has never appeared. In other cases it is merely suppressed. A number of conditions in the woman herself and in her environment may be responsible. Almost all cases are caused by phys-

ical or mental overwork and insufficiency of food. Absent and suppressed menstruation are quite commonly seen in studious school girls who devote too much time to their books and not enough to exercise in the open air; the latter is not rare in shop girls who take insufficient food that they may be able to appear in better clothes than their small wages would ordinarily allow.

Suppression often results from changes of climate and is experienced by immigrants for some time after their arrival. It may also be brought about by change of surroundings, as when a woman moves from the country to a large city, and it may continue until she has become accustomed to her new environment.

Menstruation may never occur in the presence of a defect of development in the organs of generation, an exceedingly rare condition. When after labor the womb contracts to a size much below the normal, as sometimes, though rarely, occurs, the menstrual flow may fail to reappear. The monthly sickness may be suppressed should disease or injury be present in any of the female organs.

In the acute general diseases, such as typhoid fever, menstruation is often absent and may return only after convalescence, with full restora-

tion of the general health. The menses are also frequently suppressed in chronic general diseases, especially in those associated with debility, such as chlorosis, anemia, malaria and consumption. An excessive development of fat may prevent the flow appearing even in persons whose general health appears to be excellent. Absence of the menstrual function is a frequent accompaniment of mental disturbance, occurring quite commonly in insanity and being often produced by fright, grief or anxiety.

Rare cases have been known of women who were apparently in perfect general health and whose sexual organs seemed to be well developed but who never had menstruated.

Symptoms Accompanying Absent Menstruation.

Menstruation may be absent without causing the slightest inconvenience. On the other hand, there may be present at the menstrual period a feeling of general disturbance with headache, flashes of heat, nervousness, nausea and vomiting, and a sense of fullness and pain in the pelvis. In some cases various eruptions on the skin have been noticed.

The most common symptom associated with this condition is poor health, both mental and

physical. This, as has been shown, although frequently regarded as the result of the suppression, is usually really the cause of it.

The mother is often alarmed when the menstruation is delayed, and may try various home remedies to bring it on. The non-appearance of this phenomenon need not be a matter of concern, provided the general health is otherwise good. No medicine should be given for the purpose of bringing on the monthly sickness. Let the girl have plenty of good, nourishing food, sunlight, fresh air and out-door exercise. In time everything will probably be all right.

Treatment of Absent Menstruation.

If, however, the girl seems in poor health, or if she suffers much from pain, headache, nervousness and general discomfort, she should be taken to the family physician. The services of a gynecologist or specialist in women's diseases are almost never required. The fault seldom lies with the generative organs; it is unwise, moreover, to call attention to them. A modest young girl ought never be subjected to an internal examination, even by a female physician, unless there is ground for suspecting something serious to be the matter. The mere fact of menstruation

being delayed is not sufficient cause. Should the menstruation fail to appear, however, an examination and possibly an operation may be necessary.

The special treatment in each case will depend altogether upon the cause and will be outlined by the family physician, who should always be consulted.

Almost every case will require treatment directed to the improvement of the general bodily health. It is essential that the girl or woman live in strict accordance with hygienic rules. She should exercise in the open air, and in fact spend as much of her time as possible in the fresh air and in the sunshine. This is especially necessary in the case of overworked school girls, who must be made to apply themselves less closely to their studies. Every morning a cold hygienic bath should be taken. Sea-bathing and a change of climate and surroundings are beneficial. The girl requires nourishing food and must avoid constipation. The physician in charge may in addition prescribe one of a number of medicinal remedies.

Sudden Checking of the Menstrual Flow.

During menstruation the flow may be suddenly suppressed. Such an occurrence may follow an

exposure to cold or an unexpected emotional disturbance. It may or may not be associated with pain, but is liable to cause the patient trouble.

When the menses are suddenly checked, the girl should be given a hot tub, hip or foot bath and be put to bed under warm covers, with hot water bottles about the body and with cloths wrung out of hot water applied to the lower abdomen. At the following menstrual period the strictest hygienic precautions should be observed.

Scanty Menstrual Flow.

A menstrual flow much less than normal may be due to one of the conditions that have been mentioned as giving rise to absent or suppressed menstruation. When this is the case the treatment is the same as that described in the preceding pages.

It must be borne in mind, however, that certain women may have individual peculiarities in this respect without departing from the limits of health.

Profuse Menstrual Discharge, or Flooding.

The presence of flooding or of excessive menstrual bleeding is a much more significant condition than absence or suppression of menstruation,

and it usually indicates a more serious state of affairs. Many diseases of the female generative organs have as a prominent symptom an increase in the duration and amount of the menstrual flow. An enumeration of these many and varied diseases would serve no useful purpose and would only tend to alarm unnecessarily any woman who imagined that her periods were unduly prolonged. It is a matter solely for the physician, who should be consulted at once.

The amount of blood lost during menstruation varies in different individuals. Each woman soon recognizes what her normal is, which she can bear without discomfort or impairment of health. When two or three times the usual amount of blood is lost an abnormal condition is present, demanding attention. In such a case the blood usually comes away in spurts or gushes, being bright red instead of dark, or it may form clots in the vagina, which are discharged from time to time. The bleeding is always increased when the woman stands or moves about. The flow may be excessive throughout the period, it may be unduly prolonged beyond its normal limits, or it may be both excessive and prolonged. The woman's health is usually affected with resulting pallor, shortness of breath and general debility.

Two Alternatives.

If the bleeding is really excessive, there are two things a woman can do—one dangerous, the other safe. If a woman wants to tinker with her life and her health, she can take any one of the many worthless patent medicines that the misleading advertisements guarantee to cure conditions which she imagines are exactly like hers. If she takes these alcoholic beverages long enough she may delay applying for proper relief until the condition is past all cure.

The only safe thing for a woman to do when she notices excessive bleeding is to immediately consult a reliable physician. Doctors who advertise are as dangerous as the advertised medicines.

Vicarious Menstruation.

The term, vicarious menstruation, is applied to the discharge of blood at the menstrual period from some part of the body other than the uterus. This bleeding may come from the nose, the throat, the lungs, the stomach, the bladder, or the rectum. It may occur in addition to the normal flow. It is a rare condition, though, as a rule, of no serious import, being usually found in debilitated, nervous women. In some cases, however, it is indicative of defective development.

The treatment of vicarious menstruation is entirely hygienic, directed to the improvement of the general health. A physician should be consulted to find out if any physical defect or local disease is present.

A woman must never take it upon herself to decide that a hemorrhage or bleeding is due to vicarious menstruation.

Dysmenorrhea, or Painful Menstruation.

A certain amount of pain and discomfort and other local and general disturbances may accompany normal menstruation, as has been described in the preceding chapter. More than this is abnormal. When the symptoms are increased, the pelvic pains may begin from one to two days to a week before the appearance of the flow. They are of a dull, dragging character, extending all through the back and down the thighs, often accompanied by severe headache, and occasionally associated with nausea, extreme lassitude and nervous excitability. They may be greatly relieved by the establishment of the flow, or they may continue throughout its duration. In some cases the suffering is not only more severe than that found normally, but is of a different character; the pain beginning just before, or exactly

with, the appearance of menstruation, being sharp, well-defined, and cramp-like, and coming on in brief, frequently recurring, paroxysms, while the general symptoms are less marked.

The Causes of Painful Menstruation.

Pain occurs at the time of the menstrual period in the conditions called anemia and chlorosis, which are associated with impoverished blood. It is common in young girls under twenty years of age and is sometimes seen in young married women. Its chief causes are poor hygienic surroundings, overstrain caused by the perpetual rush and excitement of constant social engagements and consequent appointments with milliners and dressmakers, and too close application to studies. Painful menstruation is often due to an obstruction to the flow of blood produced by a bending forward of the uterus or of its neck, or by a stiffness of the neck of the womb, which prevents its opening, or by some other mechanical obstacle. Mal-development and disease of the reproductive organs are other causes. In neurasthenia menstruation is often accompanied by severe pain and other disturbances having no anatomic basis, but being merely part of the nervous condition.

Treatment of Dysmenorrhea.

When painful menstruation is due to inflammatory disease or to a bend in the womb, it is seldom outgrown. On the contrary, if not relieved, the suffering tends rather to increase. The proper methods of treatment in this condition will be prescribed in each case by the attending physician.

When the pain experienced at the monthly period is due to an impoverished condition of the blood or to a lowering of the general health, hygienic treatment is indicated. In many cases it alone will effect a cure. Before a young unmarried woman is subjected to a local examination (except in the presence of inflammation) she should conscientiously carry out such general measures over a long period of time. In most cases the suffering will thereby be relieved. Of course the treatment—even when only hygienic—should be under the physician's directions. If the severity and persistence of the symptoms demand it, an internal examination is justifiable, but in a virgin it is best made under an anesthetic. A simple operation may be found necessary. A course of local treatment, however, in a young, unmarried woman is decidedly objectionable and seldom necessary.

Fresh air, sufficient nutritive food, proper bath-

ing, daily exercise, at least eight hours' sleep at night and a nap in the afternoon, if possible, avoidance of late hours, of excitement, of over-exertion and of constipation, will usually prove sufficient to bring about a normal condition of affairs.

Management During the Period.

Rest is the most essential remedy for painful menstruation. Absolute rest in bed for two or three days at each period is necessary, beginning if possible before the appearance of the flow. This may often be discontinued after some months, but in other cases one must rest in bed each time for at least the first twenty-four hours.

A girl suffering from this condition should remain home from school during her menstrual period.

Pain during menstruation is often relieved by the application of heat externally in the form of hot water bags or hot sand bags. Benefit sometimes results from a hot mustard foot bath, made by putting two teaspoonfuls of mustard in a foot-tub full of water as hot as can be borne and kept hot by the constant addition of very hot water. In some cases a hot drink following the foot bath proves efficacious. A hot mustard

plaster applied along the spine for from ten to twenty minutes may be of service.

Drugs are sometimes given by the attending physician. Alcoholic stimulants, such as gin, whiskey and the various patent medicines, should be avoided. They may work serious injury.

CHAPTER VIII.

THE MENOPAUSE.

Age at Which the Menopause Occurs. Physiology of the Climacteric. Symptoms of the Menopause. Danger Signals. Hygiene of the Menopause.

The period during which a woman experiences the monthly sickness lasts on the average about thirty-four years. The final cessation of menstruation is spoken of as the menopause, climacteric, or "change of life."

Age at Which the Menopause Occurs.

In this country the menopause occurs, as a rule, anywhere between the ages of forty and fifty-five, the majority being between the forty-fifth and fiftieth year. The age depends upon various conditions. When menstruation begins early it usually ends late, and when it begins late, ends early. It may appear prematurely in very fat women, in those suffering from consumption, Bright's disease, or diabetes, and in women who

have borne a large number of children in rapid succession and have suckled them. It may be retarded in the presence of disease of the womb, tubes or ovaries, especially when there is a fibroid tumor of the uterus. "Change of life" appears later in the northern part of Europe than in the southern, in England than in America, in country than in city residents, and among the idle and well-to-do than among the laboring classes.

Physiology of the Climacteric.

All the organs of generation become smaller at the climacteric and gradually cease functionating. Many of the disagreeable sensations experienced at this period are due to the absence in the blood of the product secreted by the ovaries. Shrinking occurs in external as well as in internal organs, shown by wasting of the breasts.

The mode of onset of the menopause varies. In the majority of cases the amount of blood passed at each monthly period becomes gradually diminished until it ceases altogether. In other cases the menstrual flow stops abruptly and permanently. Sometimes one or more periods are skipped, after which the flow again occurs, perhaps with a lessened amount, followed by more irregularity and then by the final cessation.

Symptoms of the Menopause.

If the woman's general health is good, and if there is no disease of any kind, the menopause may be ushered in with no more symptoms than those already noted. No marked general disturbance is present in such a case. Many women, however, suffer from very annoying conditions for one or two years. Headache is a common symptom. Hot flushes may occur frequently throughout the day, sometimes as often as several times within an hour. They consist of a feeling of heat over the whole body or over a part, followed by sweating and a cold, chilly sensation. Palpitation of the heart is experienced in many instances. The digestive apparatus often gets out of order. Large accumulations of fat may develop. There is sometimes a marked derangement of the nervous system at this period, affecting occasionally even the mental condition. The woman may exhibit slight vagaries, a loss of interest in the daily affairs of life, and in extreme cases even melancholia and other forms of insanity.

Danger Signals

It is a great mistake, however, to ascribe all disturbances occurring at middle life to the meno-

pause. Many serious conditions have been overlooked by such superficial observation. Every symptom complained of should be investigated just as thoroughly as at any other age.

Owing to her ignorance as to what constitutes the normal occurrences to be expected at the menopause, a woman usually is unable to recognize dangerous symptoms when they appear. Every year many women lose their lives in consequence of this ignorance. They view the danger signals with complacency, regarding the warnings as part of the normal phenomena of the climacteric. It is, therefore, most important for every woman who has reached her fortieth year to acquaint herself with the normal symptoms that accompany "change of life" and to be able to recognize the symptoms of disease that frequently occur at the same time.

When diseased conditions are present, Nature gives certain warnings which must be regarded if the disease is to be checked in time. The following phenomena are not normal: (1) Profuse bleeding at the time of the menopause; (2) Slight bleeding occurring oftener than once in four weeks; (3) The apparent reappearance of menstruation or of slight irregular hemorrhages after the menopause has been established and

menstruation has been absent perhaps for many months; (4) The appearance of watery, irritating or rust-colored discharges.

Such symptoms occurring in women over thirty-five, and particularly between forty and forty-five years of age, should always be viewed with alarm. When they occur, a woman should immediately consult her physician. Any bleeding from the vagina in a woman who has passed the menopause should arouse the gravest suspicion. It is often caused by a tumor of some sort. If the tumor be a fungous growth, a polyp, or a fibroid, the condition may not be so serious as if it be a cancer. In the latter instance, delay in seeking medical advice usually means death, while promptness may result in a cure. Professor Penrose says of cancer of the cervix that "in the early stages the disease may be eradicated with every probability of a permanent cure," but that "the great majority of women come to the operator when the disease has extended too far to permit any radical treatment."

Hygiene of the Menopause.

A woman entering upon the "change of life" would do well to carefully observe the rules of hygiene. It is most important that the general

bodily health be maintained. Frequent warm baths are required to keep the skin acting well. The diet should be simple and unirritating, with restriction of meats and an increase in the amount of vegetables eaten. Sugar is apt to set up a fermentation in the stomach; consequently sweet dishes, such as cakes, candies, preserves, jellies and sweet puddings must be taken in moderation, and when indigestion is present, avoided altogether. The woman will also have to refrain from eating pastry, hot breads, fried food and rich dishes. She should drink water freely, taking three pints a day if possible. Stimulants are to be avoided, alcohol in any form being prohibited. It is necessary to keep the bowels open by taking suitable food and exercise, or by means of purgatives or laxatives when required. There is decided advantage in an outdoor life and in gentle exercise in the open air. Massage is beneficial, especially to those who for any reason are unable to take active exercise. It may be given twice a week by a skilful masseuse.

The Turkish bath is an excellent form of exercise, combining the effects of massage and of the hot bath. It is particularly useful at this period, distributing the blood throughout the body and aiding the skin in getting rid of waste matters.

It must not be taken, however, without the physician's permission or advice.

The nervous system also demands attention. Domestic burdens should be lightened and the woman relieved of worry and responsibility as much as possible, though not left without congenial occupation. It is well to provide some form of amusement. A change of locality and surroundings is sometimes required. In certain cases it may be even necessary to resort to the rest-cure.

CHAPTER IX.

THE CRUSADE AGAINST CANCER.

How Cancer Grows. The Danger of Delay. The Parts Usually Attacked. Warning Symptoms. Proper and Improper Treatment. A Yearly Examination.

The spread of cancer during the last quarter of a century has been one of the most alarming situations with which the medical profession has had to cope. In some sections of Pennsylvania cancer kills as many persons as tuberculosis. It is believed that if the people will work with the physicians, the spread of cancer can be checked. In the great majority of cases the disease is absolutely curable in its early stages.

In order that the public should understand this, and that each case should be recognized at the earliest possible moment, national and state medical societies have appointed committees to instruct the public. The following is part of the public announcement of the Pennsylvania physicians:

Science has not yet ascertained the first causes of cancer. But constant study of it has enabled the medical profession to recognize some of the things that invite and encourage it. It is also known to a certainty that in its early stages cancer is a local disease, and that if it is quickly removed an absolute cure is effected.

How Cancer Grows.

Cancer usually makes its appearance in some part of the body accessible to the surgeon. When once it has started, it has never been known to subside of itself.

If it is permitted to grow, it not only spreads on the surface and sends its roots deeper into the flesh, but little particles of the tumor are carried by the blood to lodge in other parts of the body. These particles act as seeds, take root and grow new cancers. The lungs, liver or other organs catch these seeds from the blood.

This explains the vital importance of cutting out the first cancer in the earliest stages.

To secure this early surgical treatment, it is necessary that the public should be watchful for the appearance of cancer and quick to recognize the symptoms when they do appear. Then a reputable physician should be consulted at once.

Cancer is a malignant tumor, which may begin in any tissue, but which frequently originates in the skin or mucous membrane, and then should be readily recognized by a layman. At first the mass is hardly visible to the naked eye. After a short time, if the growth is near the surface—where it nearly always is—it can be easily seen or felt. It may be mistaken for a wart or mole. A wart or mole that continues to grow demands the attention of a surgeon. It may be cancerous. However, the layman should never decide for himself on this point. The doctor should be consulted without delay.

If the growth becomes ulcerated it is almost a sure sign of beginning cancer. Up to this time the cure is not only certain, but easy. It is simply a matter of cutting out the tumor before it has spread to important structures in its vicinity, and before it has sent out its seeds to become internal cancers. The longer the delay, the more dangerous is the operation and the more likelihood that malignant tumors will occur in other parts of the body.

The Danger of Delay.

The growth of cancer may be almost definitely divided into two periods; the first in which the

cure is simple and virtually sure, and the second, after it has spread to such an extent as to make the treatment difficult and the cure improbable. If neglected for a sufficiently long period, the cancer will reach a stage in which it cannot be cured by any method now known to the medical profession.

The point to be emphasized more than any other is that as soon as a malignant growth makes its appearance, be it ever so small, it should receive the attention of a reputable physician. There should be no waiting to see if it increases in size, no timidity, no making light of it. If it is cancerous, prompt action will probably save the life of the patient.

The Parts Usually Attacked.

Cancer is most frequently a disease of adults, but it may occur at any time of life. The most susceptible period begins at thirty-five years and increases until forty-five. From that age until fifty the tendency to cancer is greatest.

It is slightly more common in women than in men. In women the uterus, the breast and the skin are affected in the order named. In men the skin, the tongue, the mouth, the lip and the stomach are most commonly affected.

Other organs may be attacked in either sex, though with less frequency.

So far as now known, cancer is not inherited.

In very rare cases cancer has followed an injury from a single blow. But it is frequently the consequence of repeated slight injuries or irritation. Chronic inflammatory conditions due to such irritation may easily be the forerunner of true cancer. The repeated irritation of a wart or a mole on the face by the careless use of a razor is a common origin of cancer. A broken tooth rubbing the cheek or tongue often causes a sore that becomes cancerous.

The chronic inflammation that follows tears in the uterus is a constant cause of cancer in that organ. For this reason early repair of such injuries is highly important.

Certain chronic skin diseases may develop cancer if they do not receive early treatment. Ulcers or sores of any kind in any part of the body, if continued unrelieved, may become cancer. Oftentimes such ulcers are cancerous from the start.

A tumor of any kind, even a simply fatty tumor, may develop into cancer if allowed to remain. Such tumors should be removed promptly after being discovered.

Warts and some of the large pigmented moles often become cancerous. This is especially true when they are subjected to irritation which causes chronic inflammation.

Warning Symptoms.

In some of the most prominent seats of cancer the danger signals are as follows:

1. *Cancer of the breast.* A small hard lump in the breast at any age is an abnormal condition, and should be removed at once, as later it may develop into cancer. If a woman is over thirty-five or forty years of age when this lump is discovered, it is cancerous in 90 per cent. of the cases. Such a lump, therefore, should be removed at once. If one waits to see if it is going to grow, it will very likely develop internally, and after a few months will be beyond reach of any treatment.

2. *Cancer of the uterus.* The danger signal here is slight bleeding at irregular times after thirty years of age, or any bleeding after the change of life. The first appearance of such hemorrhage should lead at once to a thorough investigation of the cause. It may happen that the warning may not be repeated until the advanced incurable stage is reached. Any dis-

charge of bad odor in a woman over thirty years of age should have the attention of a physician.

3. *Cancer of the lip, tongue or mouth.* Here the danger signal is a wart or mole of any kind that will not heal. If such a condition first appears in the lip, mouth or tongue of a person over forty years old it is practically certain to be cancerous.

4. *Cancer of the skin.* Here, too, the danger signal is a sore of any kind which does not readily heal. It is always suspicious if a wart or mole which has been present for a long time suddenly begins to grow.

5. *Cancer of the stomach and alimentary canal.* Here the danger signals are less evident. The presence of obstinate indigestion, loss of flesh, strength and appetite, persistent colicky pains in the abdomen, obstinate constipation or diarrhea, the vomiting of blood, or blood in the stools, are all signals of the gravest danger and must at once be investigated. This is especially true if the person is over forty years.

In the stomach an ulcer or some other simple condition may be present for a long time and later develop into cancer. When this change occurs there will be a marked increase in all the symptoms. Any serious digestive troubles in

middle life should receive prompt attention. If they do not yield readily to medical treatment, the question of cancer is at once raised and should be thoroughly investigated.

It is of first importance that people should know that in the early stages of cancer there is no pain and no impairment of general health. Every physician of experience has patients who come to him with advanced cancer and say that they received the warning signal months before, but did not pay any attention to it, because they experienced no pain and felt perfectly well. They ignored the danger until too late for help.

Proper and Improper Treatment.

A special warning is necessary against patent and secret processes applied by certain quacks in so-called "cancer institutes." These are not only useless, but often actively harmful, aggravating the tumor and increasing its growth.

In general, the only efficacious treatment for cancer is the complete surgical removal of the diseased tissues. A few exceptional cases are amenable to X-ray under the direction of a recognized and skilful expert. But these cases are so few as not to concern the public or the general practitioner.

The one safe and reasonably reliable cure for cancer is the surgeon's knife, properly applied in the early stage.

Four out of five cancers develop in parts of the body easily accessible to surgery. They usually give ample warning of their presence, so that treatment may be applied during the curable stage.

In scores of laboratories all over the country there is a tireless search being pushed to find some other cure for cancer. When it has been found the medical profession will be the most eager to welcome and use it.

But at present two points strongly urged are:

First, that the public should be on the watch for warnings or symptoms of cancer, that they may be detected in the earliest possible stage. And, secondly, that the cancerous growth be immediately cut out by a competent and recognized surgeon.

Perfect co-operation of public and physicians, in this respect, will reduce the death rate from cancer to a minimum, and render what is now a dreadful scourge a comparatively simple malady.

A Yearly Examination.

Professor Howard A. Kelly, of Johns Hopkins University, urges as a measure in the warfare

against cancer of the womb that every woman who has borne children should be examined by a competent physician at least once every year until she is fifty-five years old. He believes that this would result in the prompt discovery of a number of cancer cases in their very incipiency. "That such a course would be distasteful to women at large," says Dr. Kelly, "I do not doubt, but drastic measures are often necessary to purge ill humors; and who would measure such a trifling sacrifice against the great gain of even a small increase in the percentage operability of this distressing and to-day largely hopeless class of cases?"

CHAPTER X.

THE GUARANTEE OF SAFETY IN THE MARRIAGE CONTRACT.

Preventing the Marriage of the Unfit. Infection through Marriage. The Distribution of Literature. Presenting the Facts.

Among the laws of Indiana concerning marriage occurs the following clause:

"No license to marry shall be issued when either of the contracting parties is an imbecile, epileptic, of unsound mind, or under guardianship as a person of unsound mind, nor to any male person who is or has been within five years an inmate of any county asylum or home for indigent persons, unless it satisfactorily appears that the cause of such condition has been removed and that such male applicant is able to support a family and likely to so continue, nor shall any license issue when either of the contracting parties is afflicted with a transmissible disease, or at the time of making application is under the influence of an intoxicating liquor or narcotic drug."

The object of such a law is to guarantee safety in the marriage contract and to provide for the health of the unborn.

Infection Through Marriage.

The likelihood of transmission is great when either husband or wife is suffering from consumption or from one of the social diseases.

Years of treatment are required before it is safe for one with syphilis to marry.

It is impossible to tell when gonorrhea is cured. Many cases of apparent cure are merely conditions of quiescence, the symptoms being absent but the germs still lurking about. When one but stops to consider that 80 per cent. of young men contract this disease, one realizes the risk run by every woman who enters wedlock.

The Distribution of Literature.

In the interest of American women and for their protection, the Pennsylvania Society for the Prevention of Social Diseases has issued a circular of information to insure to them:

1. Full mental and physical health,—the birthright of nature's children.

2. Free access to facts that will guard them

against ignorant error, and consequent physical disaster to themselves and their children.

3. The observance of a like standard of morals for men and women, and the public recognition by society at large of nature's inexorable decree that physical and moral hygiene must be identical for the two sexes if the health and vigor of the nation shall continue.

4. Full knowledge that certain diseases which are now recognized as factors in depopulating civilized nations, and are widespread in our own America, appear to be most certainly preventable by one means, the education of our women in demanding of their husbands, sons and friends, lives as clean as their own, and therefore as free from the likelihood of transmitting disease.

5. And finally, the knowledge that women and children have suffered untold misery, and have been subjected to a physical blight, pitiless and unrelenting, as the result of an ignorance that has been permitted by those who should protect and cherish rather than destroy their homes and homemakers.

Presenting the Facts.

The following are among the facts submitted: That syphilis and gonorrhea, the so-called

venereal or social diseases, are as widespread throughout our civilized communities as any other communicable infections.

That both diseases are acquired, by the male, mainly through illicit intercourse; by the female, largely through (on her part) innocent infection, carried to her by a diseased husband.

That each of these diseases is transmissible throughout its course, not only through sexual intercourse but also by means of the discharges from lesions (sores) upon the fingers, the body, the tonsils, the lips; through the kiss, by means of clothing, pipes, cigarettes, and other utensils of daily use.

That syphilis may be and is transmitted to children by either the father or mother.

Gonorrhea may be and often is transferred from mother to child (usually causing an infection of the eyes), and occasionally from child to nurse, relatives and friends.

That gonorrhea and syphilis are the direct cause of more than one-fifth of all the blindness in the world.

That many thousands of children are annually born diseased, dead, or doomed to death in early infancy, as the result of gonorrheal or syphilitic parentage.

That more miscarriages and abortions (death of the child before birth) occur as the result of syphilis and gonorrhea than from any other known causes.

That at least fifty per cent. of the sterility (inability to produce children) among men and women is due to gonorrhea or syphilis of the husband, usually transmitted from and by him to the wife.

That many men and women remain uncured and infectious long after they believe themselves rid of the danger of transmitting disease.

That gonorrhea is the direct cause of between ten and ninety per cent. (the percentage varying in the experience of distinguished surgeons) of all the abdominal operations performed upon women. Few women are thoroughly cured of gonorrheal disease.

That exceedingly few men whose lives are morally unclean escape infection with gonorrhea or syphilis, or both, and fail to become a source of danger to those with whom they come in daily contact, and to their future children.

That a man of confirmed drinking habits is, with rare exceptions, also morally and physically tainted, the association of dissipation with immorality and its attendant venereal disease being

so frequent as to constitute a warning and a menace.

That the girl or woman who ignores these facts when choosing her male acquaintances, her friends, and her life partner, invites into her future a moral degradation, physical incapacity, probably the ordeal of a grave surgical operation, the possibility of permanently diseased children, or of complete sterility, and the imminent risk of a broken or unhappy home.

CHAPTER XI.

PROVIDING FOR THE HEALTH OF THE UNBORN.

Protecting the Children. Frankness Concerning Hereditary Disease. The Day of Reckoning. Where the Hereditary Taint is Slight. Drunkenness an Obstacle to Marriage. Insanity and Epilepsy a Bar to Marriage. Deaf-Mutism in its Relation to Marriage. Instinctive Criminality a Form of Degeneracy. Heredity Sometimes a Factor in Consumption. The Marriage of Syphilitics. Consanguineous Marriages.

Protecting the Children.

There is another important consideration in marriage for which the Indiana law wisely provides, namely, the protection of the children. As stated by Professor Richardson:

"The first step toward the reduction of disease is, beginning at the beginning, to provide for the health of the unborn. The error commonly entertained, that marriageable men and women have nothing to consider except wealth, station or social relationships, demands correction. The offspring of marriage, the most precious of all

fortunes, deserves surely as much forethought as is bestowed on the offspring of the lower animals. If the intermarriage of disease were considered in the same light as the intermarriage of poverty, the hereditary transmission of disease, the basis of so much misery in the world, would be at an end in three, or at most four, generations."

Frankness Concerning Hereditary Disease.

Strahan advises that all persons who contemplate matrimony, or to whom attention and overtures are being made with a view to marriage, should look upon a mutual exchange of confidences upon this matter of heredity or family disease as absolutely essential, and that, too, at an early period of the intimacy, before the affections have become deeply engaged. Too often knowledge of the existence of the family skeleton, when given at all, is only given when matters have gone so far that only those of strong will find it possible to give up the loved one because of an evil so distant and shadowy as this family taint appears to the eyes of the lover.

Before the marriage of a person in whose family there is an hereditary disease, it is well to consult a competent physician and lay the whole matter before him candidly and honestly. His

decision should be accepted as final. The importance of adopting such a course cannot be emphasized too strongly.

The Day of Reckoning.

Untold misery is entailed by the disregard of such precautions. The day of reckoning has thus been described: "In some cases it comes very soon, as where the first-born's vacant face is scanned day after day, and the heart sinks as the terrible fact forces itself upon the parent that his child is an idiot, or where the young wife suddenly loses all that made her god-like, all that made her human, and the husband finds himself with a creature in his arms at which his soul revolts. . . .

"But in many cases the evil day does not arrive until middle life; and then, when the fear once felt has worn away, when the deception practiced has faded from the memory, and the grave admonition of the physician is forgotten, the son in whom the father hoped to live again, the girl on whom the mother's heart is set, is torn from the family circle a raving maniac, a tortured epileptic, a drunken criminal, or, happily, a suicide. Then arise sad regrets, but it is too late; the laws of Nature have been ignored, gratification has been

purchased, and the price must be paid. The sins of the fathers shall be visited upon the children."

When the Hereditary Taint is Slight.

In addition to the cases in which the hereditary predisposition to disease is so decided that marriage should not be considered, there is a still larger class of those in whom the taint is so mitigated that, with a properly selected partner, a fairly healthy family may be reared. If a member of a neurotic family—namely, one in which insanity, epilepsy, drunkenness or suicide has at any time appeared—marries a healthy member of a healthy family, the tendency to nervous disease, if not too deeply marked in the parent, may be totally lost in the children. But when he marries into another neurotic family disaster will surely fall upon the luckless children. Even when the disease has appeared in but one or two members of the family, it shows the existence of the tendency and will probably reappear in the children of such an unfortunate marriage.

Drunkenness an Obstacle to Marriage.

There is probably no disease or vice which causes deeper degradation in the individual and more acute suffering in the family than drunken-

ness. It is the starting point of insanity, epilepsy, crime, and endless diseases in posterity.

Idiocy is often due to a family taint of drunkenness, about 25 per cent. of idiots being children of intemperate parents. In Norway, when the duty on liquor was removed and intemperance at once began to increase among the people, idiocy increased 150 per cent. and insanity 50 per cent. among the children born during the next ten years.

No woman should marry a confirmed drunkard; nor should she become engaged to the son of one until his disposition and character have been most carefully inquired into.

Insanity and Epilepsy a Bar to Marriage.

When insanity is inherited in any family, it usually appears in only one, two or three members of each generation; but it may be transmitted to the next generation by those who do not themselves become insane. A person who at any time has been insane should never marry. A member of a family in which any mental disorder has appeared should not marry into another neurotic family. If, however, such a one be a man, and show no evidence himself of the family failing, he may sometimes marry into a healthy family with

but a minimum of danger to the offspring, although it were best not to run the risk of progeny. Such permission, however, can never be granted to a woman, as there are certain epochs in her life when the chances for losing her reason are very great if there be an hereditary taint of insanity in her family.

Epilepsy may practically be regarded as an hereditary affection. Although at times it may seem to be brought on by injury or fright or nervous irritation, it seldom attacks one who does not inherit a neurotic temperament. In fact when there is insanity in a family the children are liable to be epileptic. Consequently one subject to this disorder should not marry.

Deaf-Mutism in Its Relation to Marriage.

There are two classes of deaf mutes which must be carefully differentiated before the question of marriage is considered. In one, family predisposition plays no part; in the other, the disease is of an hereditary character. Where deafness has followed some injury to the organ of hearing before or shortly after the power of speech has been attained, it should not be a hindrance to marriage, as it is never transmitted. Deafness present at birth, however, is usually dependent

upon some family defect, being a condition of degeneracy closely allied to idiocy. Clouston considers it a physiological sin that marriage between such persons should be legal.

Instinctive Criminality a Form of Degeneracy.

The habitual criminal is an abnormal type of individual, the result of a family degeneracy. He is a moral imbecile, lacking the moral sense in the same manner as the idiot lacks intelligence. The hereditary character of this form of degeneracy, which is known as instinctive criminality, has been recognized from the earliest times. Like every family trait, it may be transmitted to all or only to some of the members of each generation.

Of all the persons convicted of wilful murder in England and Wales between the years 1879 and 1888, 32 per cent. were found insane.

It is needless to say that a member of a degenerate family should never marry and thus transmit the criminal tendency.

Heredity Sometimes a Factor in Consumption.

While consumption itself is not inherited, it often occurs in persons who from birth are characterized by lowered vital resistance. This condition of inability to resist disease may be transmitted, but, as a rule, is acquired.

Persons who have this condition of undevelopment and lessened vital force may transmit it to their children. If they marry into a family with the same failing, this tendency in the offspring will be more marked. As a rule, however, by careful attention to the laws of hygiene, the tendency to consumption may be overcome. A person with such an hereditary taint, by proper living, may not only avoid having consumption herself, but may so eradicate this family failing that it will not appear in the children.

The Marriage of Syphilitics.

Syphilis is not an hereditary disease, strictly speaking, but it may be transmitted to the offspring by either parent. A person who has once had this disease should not marry until a physician has declared the disease cured and has given his permission for the marriage.

The period of danger may last from two or three years to ten or fifteen years after the onset of the disease, depending upon the faithfulness with which the treatment has been carried out.

Consanguineous Marriages.

The question of consanguineous marriages is usually settled by the law, in many States mar-

riage of first cousins being forbidden. There is no physiological reason, however, why such marriages should not take place. A committee appointed by the New York State Medical Society to investigate the influence upon the offspring of consanguineous marriages stated in its report that, if the family be free from degenerative taint, marriage among its members in no way diminishes the chances of healthy offspring. Other authorities also agree that there is no greater amount of disease or deformity among the offspring of parents related to each other by blood than among the children of parents not so related, provided the parents be equally free from tendency to disease or degeneration.

Such marriages, however, are almost certain to transmit in an accentuated form any disease or defect already present in the family. Inasmuch as at the present time almost every family has a taint or tendency to disease of some kind, and as all such imperfections are transmitted and rapidly deepened in the family by the intermarriage of its members, it is best that such unions in all cases be forbidden. They should be discountenanced even in healthy families, for such union may wake up some pathological character which has been latent for one or two generations.

CHAPTER XII.

REPRODUCTION THROUGHOUT NATURE.

An Explanation of Nature's Mysteries. Reproduction: In Plants, in the Lower Animals, in Man. Conception. The Development and Nourishment of the Embryo or Unborn Child. The Placenta and Umbilical Cord. Changes in the Mother During Pregnancy.

The physiology of so important an event as pregnancy should be understood by every woman. Emphasis has already been laid on the necessity of a mother's explaining Nature's mysteries to her daughter in an intelligent and tactful manner. Matters of this kind, however, should be regarded in a broad light, the whole world being included in the view. The description given on the following pages, it is hoped, will not only make the matter clear to the mother, but will also suggest to her a way to present this delicate subject to her daughter.

Everything Composed of Cells.

When seen under the microscope, all plants and all animals are found to be composed of minute

bodies, called cells. The shape and kind of these cells vary in different structures. The roots of a tree are made of one kind of cell, the leaves of another, the bark of a third, the fruit of still a fourth, and so on. In the same way skin, muscle, bone, hair and nails are each composed of a different kind of cell.

All new individuals begin with one cell, which divides and subdivides until it forms many cells, each of which grows and divides again. The ovule in a seed divides, some of its cells forming roots, others becoming stem and leaves.

Various Methods of Reproduction.

The original cell that forms the new body is produced in various ways. In the yeast plant and in the hydra the new cells appear as buds on the parent cell. Sometimes, as in seaweed and in the green slime or algæ seen on stagnant pools, the parent cells divide into two daughter cells. In all higher forms of life, however, a union of two dissimilar cells is necessary to form the first cell of the young organism. Most plants and animals develop certain cells, whose sole object is to perpetuate the species. These reproductive cells usually are of two kinds. One kind, called the female, becomes converted into the young cell as

soon as it comes in contact with the other kind, called the male.

In flowers the pistil is the female element, its stigma and style forming a tube leading down to the ovary, in which lies the ovule or female reproductive cell. The pollen on the stamens represents the male reproductive cell. When blown by the wind down the style of the pistil, or carried down on the antennæ or sucking tubes of insects, the pollen fertilizes the ovule which lies at the bottom. As soon as the ovule comes in contact with the pollen it begins to divide and finally becomes a seed, capable of producing another plant.

In animals, as a rule, a union of the male and female elements is necessary. As the impregnated cell divides, a living creature begins to be formed, which at first is not always like the parent. From the egg laid by the butterfly crawls the caterpillar, which later builds its cocoon, whence it emerges a fully developed butterfly. The tadpole is hatched from the egg of a frog and, after continuing to grow as a water animal, it one day sheds its skin and becomes a frog.

Reproduction in Human Beings.

Every month a woman discharges from the ovary a mature ovum, which enters the funnel-

shaped end of the Fallopian tube and travels down toward the uterus. If at this time any male cells, called spermatozoa, happen to be in the tube, having worked their way up through the uterus from the vagina, one of them may penetrate the ovum, or female reproductive cell.

The moment the two cells unite, conception has occurred; the resultant cell formed by this union is the beginning of the future child. This cell divides into two cells and then into four, eight, sixteen, and so on.

As the cell or egg divides, it passes into the cavity of the uterus, where it lodges in one of the folds of the thickened lining membrane. Here for nine months it develops, first into an embryo with gills and a tail, then into a fetus, or crudely formed child, and finally into a normal infant. The shell or outer part of the egg is formed by the membranes. The developing child lies surrounded by the waters, or amniotic fluid. As the cells continue to divide, they become specialized, some going to form the skin, others to make muscles, bone, and so forth.

Nourishment of the Child Within the Womb.

The fetus is nourished by the mother's blood, which enters its body at the umbilicus, or navel.

Three long blood-vessels extend from a thickened spot on the uterine wall, called the placenta (which forms part of the after-birth), to the child's navel, at which point they enter the body. These vessels are surrounded by a jelly-like substance, which protects them from injury and with which they form the umbilical cord.

Shortly after the child is born the umbilical cord is tied off and severed, the infant's end then drying up and later falling off.

CHAPTER XIII.

THE SIGNS OF PREGNANCY.

Determination of the Existence of Pregnancy. The Commonest Symptoms of Pregnancy: The Cessation of Menstruation; Morning Sickness; Appearance of the Face; Changes in the Breasts; Changes in the Size, Shape and Appearance of the Abdomen. Quickening. Alterations in the Nervous System. Change in Color of the Mucous Membrane. Hearing the Fetal Heart Sounds. The Physician's Examination.

Determination of the Existence of Pregnancy.

As a rule, it is not a difficult matter to determine whether a woman is pregnant, although cases have occurred in which mistakes were made. Physicians have operated on a supposed abdominal tumor only to find a pregnant uterus.

There are certain symptoms, however, which are usually present in a woman with child. But they may occur in conditions other than pregnancy, and they may be absent, though the woman be "in a family way." The physician is the only person who is competent to decide.

The most common symptoms of pregnancy experienced by the mother are (1) cessation of menstruation, (2) "morning sickness," (3) changes in the size, shape and appearance of the abdomen, (4) changes in the breasts, and (5) quickening.

The Cessation of Menstruation.

As soon as a woman becomes pregnant, menstruation usually ceases. But absence of the menstrual flow may depend upon other causes, as in the condition known as amenorrhea, described in Chapter VII on "Disorders of Menstruation." In some few cases there is a slight bloody discharge during the first three months of pregnancy. It will thus be seen that the sign is not an invariable one.

"Morning Sickness."

At the sixth or seventh week of pregnancy nausea and vomiting appear, usually lasting to the third month, being worse when the woman first arises from bed in the morning, whence it derives the name "morning sickness." It is not always present and may exist in many other conditions.

The Appearance of the Face.

After conception has occurred, dark, irregular splotches, resembling freckles, called chloasmata or liver marks, may appear in the brow and cheeks, sometimes running so closely together as to form the so-called "mask of pregnancy." Dark rings often form under the eyes. These, too, occur in other conditions and cannot be regarded as diagnostic.

Changes in the Breasts.

During pregnancy the breasts become enlarged and distended and the veins can be plainly seen. As the distension continues, white lines or striæ, resembling cracks, appear in the skin.

The nipples themselves also stand out more prominently. The colored areola surrounding them grows darker in color and broader in extent. Little glands in this areola often are enlarged to the size of buckshot and project conspicuously. As pregnancy advances, a drop or two of a cloudy liquid, called colostrum, can be squeezed or milked out of the breast. The woman usually experiences a tingling sensation in the breasts, owing to their congestion, and later a feeling of fullness when the colostrum begins to appear.

All of these changes may occur without the

existence of pregnancy; some, and rarely all, may be absent, even though that condition be present.

Changes in the Abdomen.

There is a progressive enlargement of the abdomen as the womb increases in size. Enlargement of the abdomen, however, occurs in many other conditions, and, on the other hand, it has existed without attracting the woman's notice.

After the eighth month a change takes place in the shape of the abdomen as the child's head sinks into the pelvis and its body falls a little forward. This phenomenon is known as "lightening" or "dropping." With it there is a lowering of the waist line; the upper part of abdomen becomes flatter and the navel more prominent.

The umbilicus or navel becomes gradually pushed out or everted. At the sixth month it is on a level with the surface of the abdomen, and later begins to pout. It is surrounded by a black ring, from which a black line extends along the middle of the abdomen upward to near the pit of the stomach and downward to the pelvis. This line is given the name of linea nigra, which means black line.

Owing to the stretching of the abdomen, white lines or striæ, looking like cracks, appear in the

skin, especially in the region of the flanks and the hips and along the outer side of the thighs.

The Occurrence of Quickening.

A living fetus, or unborn child, moves about within the womb, but not until about midway between the fourth and fifth months are the movements powerful enough to be felt by the mother. The sensation the mother experiences when the fetus moves is called "quickening." It has been felt as early as the third month, but may not be noticed at all until the last month. During the advanced stages of pregnancy fetal movements can usually be felt by a person laying a cold hand suddenly upon the woman's abdomen. There are two kinds of sensations conveyed to the hand; a heaving and a sensation compared to that of a finger tap under a blanket.

Necessarily, movements are never felt when the fetus is dead. They may be undetected even when it is living. There are many things, moreover, which may simulate these movements and thus lead one astray.

Alterations in the Nervous System.

A pregnant woman usually exhibits some disorder of the nervous system, becoming more sen-

sitive and irritable. Her disposition may change from placidity to vivacity, or from amiability to sullenness or moroseness. Sometimes the moral nature is affected, with impairment of the ability to distinguish between right and wrong. The appetite may become very fanciful and the most unusual articles of diet may be craved. Often a woman experiences a sense of dizziness or a feeling as if she were going to faint, or she may even lose consciousness. Neuralgia, especially of the face and teeth, is not uncommon.

Such symptoms, of course, cannot solely be regarded as indicative of pregnancy.

Change in Color of the Mucous Membrane.

During the second half of the period of gestation, and sometimes as early as the second month, the mucous membrane of the vagina assumes a bluish or purplish hue, which has been compared to the color of the lees of wine. About the same time the color of the mucous membrane about the entrance changes from a pink to a bright scarlet.

These are not infallible signs, however, as they may be produced by other conditions and may even be absent throughout the whole of pregnancy.

Hearing the Fetal Heart Sounds.

After the fifth month, if the fetus is alive, its heart sounds can usually be heard by applying the ear to the woman's abdomen. The place where they commonly are heard best is a spot about an inch below the navel, to the left (sometimes to the right) of the median line. The heart of the unborn child beats at the rate of 120 to 160 a minute. Two sounds are heard with each beat. The sound has been compared to the ticking of a watch under the pillow. It must not be mistaken for the woman's heart beat, which keeps time with her pulse. Many conditions may prevent the fetal heart sounds being heard.

The Physician's Examination.

There are some signs of pregnancy that are found on an internal examination, which, of course, only the physician can make. It is impossible, however, for any one to make a positive diagnosis of pregnancy before the sixth week, and sometimes not until the fourth month.

CHAPTER XIV.

THE HYGIENE OF PREGNANCY.

Diet. Dress. Bathing. Work, Exercise and Rest. Maternal Impressions. Care of the Breasts. Marital Relations During Pregnancy. Attention to Teeth. Avoidance of Constipation. Medical Supervision During Pregnancy.

Many women make no change in their lives with the advent of pregnancy, but continue as though their condition is attendant with no danger. Such a view is erroneous; the border line between health and disease may easily be passed during pregnancy unless the woman is careful about her mode of life and reports to her physician any unusual symptoms that may develop. The health of the child as well as that of the mother depends in great measure upon the hygiene of this period.

Diet.

During pregnancy a simple diet is best. Meat should be eaten but once a day and then only in

small quantities, cereals, fresh vegetables and fruits forming the principal articles of food. It is well to take large quantities of milk—plain, diluted with plain or effervescing water or with lime-water or barley-water, cooked with vegetables, or made into puddings, etc. The woman must be careful to avoid rich and indigestible foods. She should drink water freely, at least one or two quarts during the day. Alcoholic drinks are prohibited, tea and coffee being restricted to small amounts.

Morning sickness may sometimes be prevented if before getting up, while lying flat on her back in bed, the woman takes a hot drink of milk, broth, cocoa, chocolate, tea or coffee, with or without toast, and remains in bed for half an hour afterwards, before attempting to get up.

Dress.

During pregnancy more than at any other time care about clothing is important. It is best to wear silk or wool next to the skin. Circular garters are decidedly objectionable. All compression about the waist must be avoided. It is necessary, therefore, to discard the ordinary corset and to wear in its place an hygienic waist or corset made especially for pregnant women.

Heavy skirts and tight bands must also be avoided, skirts being suspended from the shoulders by means of suspenders or a waist.

When the abdominal walls are weak, the muscles become so overstretched that after labor they may fail to properly hold up the various organs, with resultant protuberant abdomen, filling of the stomach and intestines with gas, movability of the kidneys and dropping of the stomach and other viscera. These consequences may be prevented and the abdominal muscles strengthened by practicing certain exercises before pregnancy, and by participation in various sports. The maternity waists and corsets will furnish some support to the abdomen. Great relief may be afforded by wearing a broad, properly adjusted abdominal bandage made of flannel, muslin or ribbed wool, or of silk and elastic.

High-heeled shoes are very injurious, as they throw forward the trunk, which already tends to fall in that direction, and cause the woman to bend back her head and shoulders to keep her balance, thus straining the muscles along the spine.

Bathing.

It is especially important during pregnancy to promote excretion by the skin by means of fre-

quent warm tub baths with an abundant use of soap, taken best at night just before retiring. For its general hygienic effect a cool sponge bath in the morning is beneficial. Very hot and very cold baths, foot-baths and surf-bathing are dangerous during pregnancy.

Work, Exercise and Rest.

A pregnant woman would do well to reduce her work to below what she is accustomed to, never allowing herself to become fatigued and particularly avoiding jarring and straining. It is best not to work on the sewing-machine, move heavy furniture, lift a heavy weight, reach to a shelf, or do violent sweeping.

Advantage is derived from moderate daily exercise, such as walking in the open air and sunlight, or being driven in an easy carriage over smooth roads, but without handling the reins. General massage is beneficial, but must not include the abdomen. Horseback-riding, however, bicycling, golf, tennis, dancing, swimming, and all similar forms of violent exercise, are to be avoided. While in this delicate condition the woman should not take a sea-voyage, nor should she travel much.

The pregnant woman requires plenty of sleep.

It is well to undress after the midday meal and lie down for an hour or so.

Maternal Impressions.

In every bushel of chaff there can usually be found a grain or two of wheat. Similarly, despite the doubts cast by many physicians, there is an element of truth in the popular belief that strong impressions made on the mother during pregnancy leave their imprint on the child. Sudden emotions of grief, fear and anger often do have an influence on the developing fetus.

It is therefore important to protect the pregnant woman from disagreeable or heartrending sights and associations, bad news, fright, and the like. She should lead a placid, quiet life, amid cheerful surroundings, having pleasant diversions, such as entertaining books, beautiful pictures, and good music. Only harm results from worrying over her approaching confinement or studying about the various complications that occasionally are met with. Nor is any good accomplished by listening to the harrowing tales of gossiping neighbors or of a thoughtless nurse. The mind can rest at ease with the knowledge that labor as a rule is a perfectly natural and normal process through which hundreds of

women pass successfully every day, and that complications and accidents are of very rare occurrence. A woman may also derive comfort from the thought that if she live hygienically she will be more likely to have an easy and uncomplicated labor, followed by a normal convalescence.

If the woman becomes melancholy or shows any signs, however slight, of a deranged mind, the physician must be informed of the fact.

More than at any other period of her life, the wife during pregnancy requires the most thoughtful consideration of her husband.

Care of the Breasts.

It is advisable not to allow the clothing to press upon the breasts. If the latter cause distress on account of their increasing size and weight they may be supported according to one of the methods described in Chapter XX on the management of the woman after labor. They should be washed daily with soap and warm water, any scales upon the nipples being removed.

When the nipples are flat or retracted they must be drawn out during the latter months of pregnancy, so that they will develop into a shape that the baby can grasp. This may be done by gently pulling them out from the breast with the

thumb and index finger every night and morning, or by the use of the breast pump, or by covering them with a nipple protector or a nipple shield.

The nipples will be rendered less sensitive and less liable to fissures if, during the last month of pregnancy, they are washed every morning with cold water and then anointed with a mixture containing equal parts of water and glycerite of tannic acid, applied on a piece of absorbent cotton.

Marital Relations During Pregnancy.

The marital relations need not necessarily be suspended throughout pregnancy, except during the early and late months, when the liability to abortion is greatest. Moderation, however, must always be strictly observed. Sometimes continence is recommended, and is imperative if the woman have a tendency to abort. During the days corresponding to the usual menstrual period intercourse is always to be avoided.

Attention to Teeth.

On account of the tendency during pregnancy to decay of the teeth, it is well to have the teeth examined during the early months of pregnancy and whenever they give pain. At such times the dentist must be informed of the woman's condi-

tion so that in his treatment he may be guided accordingly.

Avoidance of Constipation.

Constipation sometimes becomes aggravated during pregnancy. In many instances it occurs only at such times. Adherence to the hygienic hints given in this chapter will help in avoiding it. Great assistance may also be had from the directions given for the relief of constipation in Chapter XXII.

Medical Supervision During Pregnancy.

While pregnancy ordinarily is a normal process, complications in many cases do occur. These can usually be prevented by careful management. Whenever, therefore, a woman believes herself pregnant, she should consult her physician and report from time to time as he may direct, sending a specimen of her urine at least once a month. In this way not only will she be more likely to preserve health and comfort during pregnancy, but there will be less danger of complications at the time of her confinement.

Should her health suffer, especially if symptoms develop such as swelling of the legs or face, dimness of vision, the occurrence of black specks

or flashes of light before the eyes, faintness, bleeding from the vagina, or acute abdominal pain followed by faintness, a woman must inform her physician. Even should the condition prove to be unimportant, no harm has been done; while failure to report may lead to serious results, even to death. Other phenomena that should be made known to the physician are rapid increase in the size of the abdomen, very active and violent movements of the child, cessation of all motion, and a noticeable projection in any part of the abdomen, with unusual movements of the child.

CHAPTER XV.

STERILITY.

Causes of Sterility in Women. Prevention. Cure. Race Suicide.

By sterility is meant the inability to produce offspring. It is believed that about one out of every eight or ten marriages is barren. The fault, however, does not always lie with the woman; in every six childless marriages about one is due to sterility in the husband. Consequently in every case of barrenness, before the wife is subjected to examination or treatment, the husband should first consult a physician.

Causes of Sterility in Women.

Sterility in the female may be due to one of many causes. It may result from some abnormality or malformation of the internal or external generative organs, a condition that may have existed since birth. The presence of a tumor may prevent conception. A displacement or bending

of the womb may have a similar effect. Lacerations or tears that have occurred during labor and have not been repaired likewise may interfere with the child-bearing function. One of the commonest causes of sterility is inflammation of the womb, especially when this has become chronic. Disease of the ovaries also frequently produces such a condition. Disease of the Fallopian tubes, however, is the most common cause. As the ovum must pass through the tube in order to reach the womb, anything that tends to prevent its passage by blocking or constricting the tube will prevent its fertilization. The tubes become blocked and constricted as the result of inflammatory processes, both acute and chronic. Acute inflammation of the Fallopian tubes is usually due to septic infection, occurring at child-birth or during a miscarriage. Chronic inflammation, a much more common condition, has its origin usually in gonorrhea, and occurs not rarely in young married women who have been infected by their husbands. Sterility also sometimes results when the vaginal discharge or leucorrhea that accompanies inflammation of the uterus or of the vagina is of such a character as to destroy the spermatozoa or male cells.

There are several general conditions that may

be responsible for sterility. The one of most frequent occurrence is great obesity. Very fat women are usually barren. Some authors seem to think that the body cannot both produce fat and produce offspring. It is well known that at the age when child-bearing ceases women often become stout, and that women who soon after marriage rapidly accumulate fat rarely have more than one or two children. A woman who suffers from anemia may be sterile in consequence. Diseases such as diabetes, cancer, consumption and Bright's disease may also be associated with barrenness.

The habitual use of alcohol is apt to prevent the occurrence of conception. Women addicted to self-abuse also seldom bear children. Authorities have come to the conclusion that in some cases sterility is due to a lack of affinity, so to speak, between husband and wife. Lack of moderation in the marital relations may lead to a similar result.

In each case the physician must decide what is the cause.

Prevention.

Knowing the causes that produce sterility, one can often prevent such an occurrence by avoiding

them. Any diseased condition should be attended to at once. It is important that lacerations be repaired as soon as possible after they occur. A displaced organ must be put back in position. Proper care during and after a labor or miscarriage will do much toward preventing barrenness. In addition to the moral aspect, the fact that a woman who has an abortion performed on her usually becomes sterile should act as a deterring factor to those who regard with complacency this destruction of a human life. If women would insist on marrying only those men whose lives have been pure, many more marriages would be fertile than are so at the present day.

Cure.

Before the proper remedy can be applied, the cause of the unproductiveness in the individual case must be recognized. In every instance the investigation should include both the husband and the wife. Consequently, before a woman is subjected to an examination it would be well for the husband to consult a reliable physician, who will determine whether or not the fault lies with him. If this investigation proves negative, the wife should put herself in the hands of a competent physician. Neither man nor woman ought ever

have anything to do with physicians who advertise—the so-called "quacks."

Some cases of barrenness can be cured, others cannot. Those due to errors in development and to malformations are rarely, if ever, amenable to treatment. When sterility is caused by abnormal conditions resulting from chronic inflammation of one or more of the organs of generation, or to a malposition, or to a laceration, the surgeon or gynecologist is often able to effect a cure. With the reposition of the displaced organs, with the repair of the lacerated structures, with the removal of the inflamed tissues, or with the treatment of the leucorrheal discharge, conception may occur.

Sterility due to the presence of a general disease often disappears with the cure of the disease. When it is the result of unhealthy modes of life, the woman herself can do much toward relieving the condition. Often a change of air and scenery is of benefit. For very fat women sufficient exercise and an appropriate diet will usually be prescribed by the attending physician in accordance with their individual requirements. The cure is not far to seek in women addicted to the use of alcohol. Matthews Duncan has described the case of an intemperate woman who was sterile for

many years, but who became pregnant on abstaining from drink. Moderation should be observed in the marital relations and all bad habits avoided.

The observance of the above precautions may be rewarded by the blessing of offspring in a hitherto childless marriage.

Race Suicide.

There are many, especially among the well-to-do, in whom there is a relative sterility brought about by voluntary sexual abstinence or by practices which prevent conception. The cause in such cases is usually what has been termed "the gospel of comfort."

Theodore Roosevelt, in an address before the National Congress of Mothers, thus expressed his opinion concerning the question:

"There are many good people who are denied the supreme blessing of children, and for these we have the respect and sympathy always due to those who, from no fault of their own, are denied any of the other great blessings of life. But the man or woman who deliberately foregoes these blessings, whether from viciousness, coldness, shallow-heartedness, self-indulgence or mere failure to appreciate aright the difference between the all-important and the unimportant—why, such a

creature merits contempt as hearty as any visited upon the soldier who runs away in battle, or upon the man who refuses to work for the support of those dependent upon him, and who, though able-bodied, is yet content to eat in idleness the bread which others provide.

"The existence of women of this type forms one of the most unpleasant and unwholesome features of modern life."

CHAPTER XVI.

MISCARRIAGE AND ITS PREVENTION.

Causes. The Signs of a Miscarriage. The Danger of an Abortion or Miscarriage. Prevention. To Avert a Threatened Miscarriage. Treatment of an Inevitable Miscarriage. The After Treatment of a Miscarriage.

The fetus is sometimes expelled before it has reached its full development. Such an accident may occur at any time during the course of pregnancy.

The course of an abortion or miscarriage is much the same as that of a labor at term. The contraction of the uterus in its efforts to expel its contents causes a gradual dilatation of the os or mouth of the cervix, which is followed by the expulsion of the embryo and its membranes, together with the placenta or afterbirth. After this, the womb contracts still further until it has again reached is normal size.

Causes.

There are many conditions that produce a miscarriage. When the fetus is diseased it may be

expelled prematurely. The presence of syphilis in either of the parents often leads to a similar termination of pregnancy. The woman, moreover, is suspectible to a number of influences which sometimes cause a miscarriage; a blow or a fall even producing it. Occasionally the uterus is extremely irritable, so much so that it is excited to contraction by the most trivial occurrence, such as washing at the tub, sweeping, dancing, taking a long walk, a horseback ride or a surf bath, making a misstep, being jolted by a carriage, being subjected to a fright or shock, and so forth. Anything that shakes or agitates the womb may have a similar effect. Consequently when the woman suffers from St. Vitus' dance, uncontrollable vomiting or coughing, or from convulsions due to kidney trouble or epilepsy, hysteria or other nervous affections, her pregnancy is liable to be interrupted. She may also lose the child when she is attacked with a severe general disease such as pneumonia. Inability of the uterus to expand on account of a backward displacement or because it is over-distended with twins or with an excess of the waters or *liquor amnii* usually produces a miscarriage. Excessive cohabitation during pregnancy is also a frequent cause.

The Signs of a Miscarriage.

A condition always present when a miscarriage is threatened, or has actually occurred, is hemorrhage. The bleeding may be slight or excessive. The blood usually does not flow in a steady stream, but is expelled from time to time in the form of clots. Yet, as there are other conditions which might cause a hemorrhage, this symptom alone cannot be regarded as diagnostic.

Pain is an almost constant symptom, its intensity being greater the further the pregnancy is advanced. It may, however, be absent, especially in early miscarriages.

The one sign by which the occurrence of a miscarriage can be verified or, to use a medical term, diagnosed, is the expulsion of all or part of the ovum. The appearance of the substance expelled varies, depending upon whether or not the embryo is surrounded by its various coverings. When enveloped in the membranes it may appear as a ball of flesh, which, on being opened, is found to contain the embryo. Again, it may be cast off as a sack with thin transparent walls, through which the embryo may be seen lying in the waters. Sometimes the whole ovum is so minute that it escapes among the clots of blood without being noticed. If the portions of mem-

branes, which resemble pieces of flesh, are floated in water they are seen to be studded over with little projections which give to them somewhat the appearance of a chestnut burr.

When the whole embryo is expelled with all its membranes, the miscarriage is said to be complete. An incomplete abortion or miscarriage, on the other hand, occurs when a portion of the embryo or of its membranes remains behind within the uterus.

The Danger of an Abortion or Miscarriage.

Every abortion or miscarriage is attended with a certain amount of danger. When the ovum is not expelled in its entirety, the portions of membranes remaining behind in the womb may putrefy, and poison the whole system, or else by their presence prevent firm contraction of the womb, thus causing a persistent hemorrhage. The mortality of miscarriage is almost as high as that of child-birth. Most fatal of all are the criminal and self-adduced abortions. In these cases there is also the danger of blood poisoning or infection from hands or instruments that were not surgically clean. The added risk of injury from the unskilful use of instruments is also very great.

Prevention.

When it is known that, owing to an irritable uterus, a woman has a tendency to abort, every precaution should be taken to guard her from any influence that might stimulate the contraction of the uterus. At the times corresponding to her menstrual periods all efforts in this direction must be redoubled. It is important to protect the woman from nervous shocks, undue physical exertion, errors in diet and marital intercourse. In the most severe cases rest in bed may be necessary, sometimes for the whole or greater part of pregnancy, certainly during those days upon which the menstrual period usually falls.

When the cause of the habitual miscarriage is known, treatment is naturally directed to its removal. A displaced uterus is restored to its proper position and kept there. A general disease such as syphilis always requires treatment. Coughing, vomiting and convulsions should receive appropriate management. In each case the physician in charge will decide what is to be done.

To Avert a Threatened Miscarriage.

When, during the course of a normal pregnancy, bleeding from the vagina is observed, a miscarriage is threatened. The woman in whom

this occurs often is perfectly healthy and of sound constitution, with normal generative organs, and who never previously has aborted. Some extra exertion or some slight violence, however, may have partially separated the developing fetus from the wall of the womb. If no suspicious flesh-like pieces have been passed, there is often a chance of averting this accident.

The woman must at once be put to bed on her back in a darkened room where everything is kept quiet. The external genital region is cleansed thoroughly with soap and water and then bathed with a 1 to 1000 bichlorid of mercury solution. A sterile gauze dressing should next be applied and held in place by a T-bandage, which consists of two strips of muslin about four to six inches wide, fastened together to form a T. The top or bar of the T is tied about the waist and the stem or tail of the T is brought down in the back and carried over the gauze dressing to the front, whence it is brought up again, the end being fastened to the part that goes around the waist. The physician, who should be immediately summoned, will probably give medicines that will diminish the nervous sensibility and render the uterine muscles less irritable.

It cannot be emphasized too strongly that in

every case where bleeding from the womb occurs during pregnancy the physician must be sent for at once and that everything passed must be saved for his inspection.

Treatment of an Inevitable Miscarriage.

When a miscarriage cannot be prevented, it is treated in much the same manner as a labor at term. A physician should always be called in. Strict asepsis must be observed as described later in Chapter XIX. Everything that comes in contact with the woman—hands, instruments and dressings—must be surgically clean. All clots and all dressings must be saved for examination by the physician; in this way he will be able to tell whether or not the whole embryo with all its coverings has been passed—a most important point. The precise line of treatment to be followed in each case will always be directed by the physician in charge.

The After Treatment of a Miscarriage.

A great deal of unnecessary sickness and chronic invalidism is due to the fact that women do not thoroughly appreciate the necessity of recovering completely from a miscarriage before taking up their daily work. Too often do they

regard a miscarriage as a matter of little moment and insist on being up and about in a few days after this accident. It is often with the greatest difficulty that a physician can persuade his patient to remain in bed for ten days.

The after treatment of a miscarriage is as important as that of a delivery at full term. The author does not wish to unnecessarily alarm a woman who may have met with a miscarriage by enumerating the many sources of danger connected with neglect of this condition. He therefore will merely state that if a woman desires to undergo a complete recovery after having a miscarriage, she must obey implicitly all the instructions of her physician. If she follows his advice faithfully she will probably never in the future experience any ill effects of her mishap.

CHAPTER XVII.

PREPARATIONS FOR THE CONFINEMENT.

The Lying-in Room. Arrangement of the Bed. Things Needed for the Confinement. The Baby's Basket. The Baby's Clothes. Preparation of the Patient. Engaging the Accoucheur. Physician vs. Midwife. The Selection of a Nurse. The Nurse's Duties.

In preparing for the confinement, it is important to know what is best to do and, if possible, to put that knowledge into practice. Unfortunately, however, a woman is not always able to do as she wishes. The best is oftentimes unattainable, in which case the best under the circumstances must suffice. Whenever possible the directions given in this chapter should be implicitly followed; they are simple and necessary. Nevertheless, for persons who for any reason are unable to adopt the first and best suggestions made, other less expensive and in some cases improvised methods are also given, which, though less desirable, are serviceable and good, and possible and practicable for everyone.

The Lying-in Room.

The room usually selected for the confinement is the prospective mother's own bedroom. It ought to be large and sunny, well lighted, well ventilated and properly heated. A communicating room for the nurse is a great convenience, leaving the mother the exclusive use of her own. Matters are also made easier if the bathroom be near. All unnecessary furniture, heavy curtains, and all bric-a-brac should be removed. If a carpet is on the floor it may be taken up, or the portion about the bed may be protected by a large rubber mackintosh, or oilcloth, or by several layers of newspaper. Rugs are removed. It is well to take out of the room anything that might collect dust, which often is a carrier of disease germs.

The Arrangement of the Bed.

A narrow and high bed is preferable, placed where it will be out of draughts. As it must be accessible from both sides, it is not placed against the wall. The mattress should be firm, hair being the best material. To prevent its sagging in the middle, three table boards, or shelves from a book-case, may be placed in the middle of the bed between the mattress and the spring.

When the bed is arranged for the labor, draw-

sheets of rubber and cotton are sometimes placed across the middle of the bed over the under sheet. This is known as the "permanent bed," but, though convenient and elegant, is often dispensed with. Over the "permanent bed," when it is used, otherwise over the mattress, are placed a second rubber draw-sheet and a second cotton draw-sheet, sometimes folded once. These constitute the "temporary bed," which is removed immediately after delivery.

If the bedstead is double, instead of single, the temporary bed is arranged at the side where the patient is to lie, being securely fastened with large safety pins. Instead of the rubber sheet, a piece of mackintosh may be substituted, or a piece of oilcloth that has been thoroughly scoured. When these are not to be had, use may be made of an old clean comfortable or of clean wrapping paper or even of clean newspapers.

On the spot where the hips will lie is pinned an absorbent pad, which, as soon as soiled, should be taken off and burned, to be replaced by a clean one. Consequently several must be provided. They are best made of nursery cloth, consisting of two layers of muslin, each one yard square, with a layer of absorbent cotton, wood wool, jute, bran, or sawdust, two to four inches thick, loosely

quilted between them. They can be made at home or bought in the shops. They must be baked in the oven, or boiled for half an hour in a clothes boiler and thoroughly dried, then pinned up in a sheet and put away out of the dust. If towels or napkins or old pieces of muslin are used, they must be prepared in the same manner.

It is well to have two sets of coverings, one for use during labor, and one to put on after the delivery.

Things Needed for the Confinement.

The occlusive bandages or napkins are best made of carbolized gauze and salicylated cotton, which, however, are rather expensive. A cheaper dressing is made out of rolled absorbent cotton, or wood wool, and washed cheese cloth. Two thicknesses of the cotton, seven or eight inches long and four or five inches wide, are enclosed in a quarter yard of the gauze or cheese cloth and so folded as to make a pad (sixteen or eighteen inches long and four or five inches wide), the edges being stitched.

Sometimes old pieces of muslin or other material, which have been boiled, are used. Three or four dozen will be required. The hands that make them must be scrupulously clean. When made beforehand they should be put into a clean

pillow case, or wrapped in a sheet, and thus boiled, steamed or baked. They then should be kept covered and put away in a clean place, free from dust.

The abdominal bandage or binder is made of washed, unbleached muslin, about a yard and a quarter long and about half a yard wide. Sometimes it is made only long enough to go around the abdomen once, in which case it is furnished with buttons and buttonholes in front and laces at the sides. It should fit firmly to give support to the stretched muscles, care being taken not to have it fastened tighter above than below.

There should also be in the lying-in room a table, a chair, two basins and a bucket.

The woman should have the following articles on hand, ready for the confinement. The absolutely necessary things are given in italics; the full list can only be obtained by the well-to-do. *Hand towels,* ether (one-half pound), brandy (two ounces), vinegar (four ounces), tincture of green soap (four ounces) or a *new cake of pure soap, antiseptic tablets of corrosive sublimate* (one bottle), a large, coarse, new sponge; a skein of bobbin (sterilized), *a fountain syringe, a bed-pan,* a new soft rubber catheter, *absorbent cotton,* salicylated cotton

(a one-pound package), carbolized gauze (five yards), nursery cloth (eight yards), *unbleached muslin* (two yards), *large safety pins, carbolated vaseline, fluid extract of ergot* (one ounce), a pair of scissors to cut the cord.

As soon as the labor has begun, three pitchers should be filled with water that has been boiled for half an hour and clean towels should then be tied over their tops. This is the only water to be used about the patient.

The Baby's Basket.

The baby itself must not be forgotten. A basket for the baby's things may be purchased or made at home. A cheap arrangement is an ordinary wicker hamper or shallow basket attached to a camp stool, lined with muslin and trimmed with silk, lace and ribbon or other suitable material, with a pocket at each corner. The frill from the basket covers the place where it joins the camp stool. The basket should contain large and small safety pins, a bath thermometer, talcum powder, a fine, soft sponge, a soft hair brush, castile soap, cold cream, alcohol for rubbing, blunt scissors for the nails, six wash-cloths of Shaker flannel, six inches square, old linen for cleansing the mouth, and a bath blanket.

The Baby's Clothes.

The following list of clothes will be required for the baby. In stating the number needed, two figures are given, the least number one can get along with and the number one ought to have. A mother may be able to economize still further by washing frequently and thus using the same garment again. Four to six flannel or knit bands or binders; three to six dozen diapers; four to six pairs of knitted woolen socks; three to four woolen shirts; four flannel night-skirts; four flannel day-skirts; four to six white day-skirts; six to ten slips; six to ten dresses; material for four or five flannel bands; a soft pillow, fourteen by eighteen inches; soft pillow covers; knit wrapping blankets; sacques, wrappers, bibs, caps, blankets, veils, and so forth.

Other Conveniences for the Nursery.

Several other articles will be needed for the baby. They are:

A bath-tub and two flannel bath aprons.

Six old, soft damask towels. Bathing towels made from diaper cloth will answer when the damask ones are unobtainable. They should be repeatedly scrubbed and boiled to be rendered soft.

A small-sized clothes bars or clothes horse. This will be used for airing the baby's clothes and holding its towels.

A low chair without arms. This is for the nurse to sit on when washing the baby.

A screen. It should have a firm, square frame, solidly covered with cretonne, burlap or denim, so that it will afford real protection from draughts or light. A bamboo screen with curtains hung on rods will not answer.

Preparation of the Patient.

When the time for confinement approaches, it is important for a woman to keep her bowels loose, by means of laxatives if necessary. As soon as she begins to experience the pains she is given a rectal enema of a pint of soapsuds and a teaspoonful of turpentine. She should take a warm general bath, washing the external genitals thoroughly with soap and warm water. A vaginal douche is not desirable in a woman not suffering from a contagious discharge, unless it has been ordered by the doctor.

Engaging the Accoucheur.

As soon as pregnancy is suspected, it is well to engage the physician, as he is to have general

supervision over the woman's life, her diet, clothing, exercise, and so forth, during the whole period between conception and labor.

Pregnancy, although usually a normal process, is subject to various complications, for whose recognition and treatment a physician is required. The kidneys, in particular, need constant watching, as they frequently become affected during this period. A four-ounce specimen of mixed night and morning urine should be sent to the physician for examination every two weeks until the last month, when it should be sent every week. A statement of the exact amount of urine passed during the twenty-four hours should accompany the specimen.

When such symptoms as scanty urination, severe headache, dizziness, or swelling of the feet or face occur, they should be reported to the physician at once.

A midwife, in the opinion of the writer, is not desirable, except in those cases where it is impossible to secure the services of a physician or medical student. The midwife rarely understands the meaning of surgical cleanliness, which is the most important factor in preventing infection or blood-poisoning. She, moreover, is unable to meet the various complications as they arise, but

always must send out for a doctor, who often arrives too late. Promptness at such a time in recognizing and meeting a serious condition is all-important.

The Selection of a Nurse.

A woman must choose between a trained nurse and the so-called monthly nurse.

A trained nurse or graduate nurse, one who has completed a course of training in a hospital, should be procured if she can be afforded. Such a person not only has the requisite knowledge as well as experience, but she has learned how to obey the orders of the physician.

The monthly nurse, on the other hand, has not had careful hospital training, being merely a woman who makes a practice of nursing maternity cases for thirty days. Nevertheless she often has acquired skill and experience with constant practice. Some monthly nurses, indeed, are very capable, and many are adaptable and able to carry out the doctor's orders in an intelligent manner. Frequently, however, they are filled with wrong ideas and queer, old-fashioned notions about the care both of mother and baby. Oftentimes they feel their experience to be of such great importance that they pay no attention to the advice or

orders of the physician; they regard the care of the patients as their own particular business rather than the doctor's. In consequence, the monthly nurse is often directly responsible for much injury to mother and child. Still she is always a great help in the absence of any one better, and she is all the majority of women are able to afford.

The selection of a nurse demands careful consideration. The woman must be known to be competent. It is not safe to employ a woman who is not known. Often the physician is able to recommend some one in whom he has confidence. In addition to ability, certain favorable personal qualities are desirable in a nurse. She ought to be able to adapt herself to circumstances, to improvise when she cannot procure the object she requires. The possession of tact will enable her to get along with the family and the servants. Honesty and honor are two necessary traits: the first, because the nurse sometimes is almost in charge of the house and always has access to every part; the second, because there is no family secret kept from the nurse, no skeleton she does not see.

The Nurse's Duties.

The duties of the nurse comprise everything that has to do with the care of both patients. She

tends to the mother, washes her, arranges her meals, and so on, and at the same time takes charge of the baby, bathing it and caring for it in every way.

The nurse, ordinarily, does not perform any work outside of her own particular duties. She is not expected to wash the baby's clothes, with the exception of the diapers and flannels, nor wash her own garments, nor do the general cooking or sewing or cleaning. She may do all these, however, if she be so disposed, or if she be engaged with that understanding. The patient's meals, however, she is supposed to prepare. Where no servants are kept, the monthly nurse often prepares the meals for the family, and when not engaged in caring for her patients may tend to some of the other household duties.

The nurse must be properly cared for, in order that she maintain her own health as well as keep at the highest point of efficiency. Provision should be made for her obtaining sufficient sleep and getting some outdoor exercise every day. It is in relieving the nurse at such times that solicitous relatives can be of most service.

The nurse is usually engaged several months before the expected confinement. At this time all arrangements about the work to be done and the

compensation to be received can be definitely settled.

As the day for the confinement approaches, it is important for the nurse to be within reach, and a few days beforehand, especially if the patient has already borne children, she should go to the house and remain there until after the confinement. If competent, she will be able to recognize the signs of labor and to know when to send for the physician. As soon as the process has begun she arranges the bed and prepares the patient.

CHAPTER XVIII.

CHILD-BIRTH.

Causes of Labor. How to Calculate the Day of Confinement. The Duration of Pregnancy. Methods of Calculation. Importance of Knowing the Date of the Last Menstruation. Child-birth or Labor. The First Stage of Labor; the Second Stage; the Third Stage. The Puerperium. Afterpains. Difficulty of Urination. Changes in the Breasts.

As has been told in previous chapters, when the pollen from the stamens of the apple blossom falls upon the pistil and is carried to the ovary, it fertilizes the ovule that lies within. The ovary thereupon grows bigger and bigger, developing into the fruit which contains the seeds from which are to spring new apple trees. As the apple becomes fully ripened, certain degenerative changes occur in the stem supporting it, which makes its connection with the parent branch so frail as to be easily broken. A breath of wind will then cause it to fall to the ground.

The phenomena that occur in animals are much similar. As the ovum which contains the unborn

offspring reaches full maturity, it becomes separated more or less from the wall of the uterus by means of a degenerative process, and is finally expelled, in human beings after forty weeks.

Causes of Labor.

Every four weeks, as has been described, the womb has a tendency to contract. In the non-pregnant uterus this results in the expulsion, in the form of the menstrual flow, of the blood that has accumulated there. During the development of the child this monthly tendency is hardly noticed until the end of the tenth lunar month, when the separation between the ovum and the womb is complete. By this time the distension of the uterus has become so great that the slightest additional impulse stimulates it to contraction.

When a ship is ready to be launched, a single blow from a hammer will start it down the ways. So with the uterus, when at the end of two hundred and eighty days it has been overstretched with a ripened ovum, the occurrence of the monthly contraction—or a little extra exercise, or a dose of purgative medicine, or a jolt, or a jar—will be sufficient to stimulate it to expel its contents. In this manner pregnancy is terminated by the birth of the child.

How to Calculate the Date of Confinement.

It is important for a woman to be able to estimate with some degree of accuracy on what day she will be confined. All her preparations are made in accordance with this calculation. The nurse is engaged for a certain date. The physician arranges his work so as to be ready for a call at the expected time. Not only is much unnecessary trouble and annoyance given to mother, doctor and nurse by lack of accuracy in calculating the date of the confinement, but the baby may come at a time when no preparations have been made for its reception.

The Duration of Pregnancy.

Confinement is said to occur about two hundred and seventy-one days from the date of conception. As it is impossible to determine accurately just when conception occurs, it is customary to make the calculations from the menstrual period immediately preceding conception. Labor may usually be expected to begin two hundred and eighty days after the first day of the last menstruation. Pregnancy, therefore, lasts about forty weeks, or ten lunar months of twenty-eight days each, or a little over nine calendar months. It is thus seen

that labor comes on at the tenth menstrual period from the beginning of pregnancy.

Methods of Calculation.

A very common way of calculating the date on which confinement may be expected is to start with the first day of the last menstruation, count backwards three months, and then add seven days. For example, if the first day of the last menstruation was on May 10th, counting three months backward would bring it to February 10th, and adding seven days would make February 17th the date on which confinement may be expected. This method will give only an approximate result, inasmuch as months are not of equal length. This difficulty is overcome by adding six days in April and September, five days in December and January and four days in February.

Various tables have been compiled to make the computing more accurate as well as simpler and easier. One commonly used is given on the following page. This table is divided by horizontal lines into twelve parts, one for every month in the year. In each compartment are two rows of figures, the upper one being the days of the month in their regular order. To determine the probable day of confinement, find in this upper row the

date of the first day of the last menstrual period; the figure immediately below it is the day of the month on which labor may be expected, the month itself being designated in the margin. For instance, if the last menstrual flow began on March 9th, the woman will probably be confined on December 14th.

In these methods of reckoning, the date obtained must be regarded only as an approximate one. Labor may occur within the week preceding or the week following that date. It is the exception rather than the rule for labor to occur exactly in two hundred and eighty days. This figure is based on the supposition that menstruation occurs every twenty-eight days.

The best way to estimate the duration of pregnancy is to ascertain the number of days between the last normal monthly period and the one preceding it, and multiply this number by ten.

As the time of confinement is calculated from the first day of the last menstruation, it is most important for the woman to know just when this flow last occurred. Many women, especially those about to be confined for the first time, fail to remember the exact date, thereby causing much worry and annoyance to themselves, to their family, and to the physician.

TABLE FOR CALCULATING THE DATE OF CONFINEMENT.

JAN.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
OCT.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	NOV.
FEB.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
NOV.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5				DEC.
MAR.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
DEC.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	JAN.
APR.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
JAN.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4		FEB.
MAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
FEB.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	MAR.
JUNE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
MAR.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		APR.
JULY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
APR.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	MAY
AUG.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
MAY	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	JUNE
SEPT.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
JUNE	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7		JULY
OCT.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
JULY	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	AUG.
NOV.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
AUG.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		SEPT.
DEC.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
SEPT.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	OCT.

Directions for Using the Chart.—Find the date of the first day of the last menstruation in the upper row; the figure beneath it is the day of the month in the margin at which labor will probably begin.

The physician is able to estimate the stage of pregnancy by noting the position of the womb.

Child-birth or Labor.

Labor is that natural process by which a woman expels from her uterus and vagina the matured ovum. This ovum, at the end of two hundred and eighty days, consists of the fully developed child, surrounded by the membranes, at one end of which is the placenta.

Labor is divided into three stages. During the first stage the birth-canal expands until it is of a sufficient size to allow the child to pass through. The second consists in the expulsion of the child. In the last the rest of the ovum—the membranes and the placenta—is delivered.

Before labor begins, the child usually lies head downward in a sack filled with water, the walls of the sack being formed by the membranes, which are everywhere in contact with the inner surface of the womb. The water contained in the sack and surrounding the child is called the liquor amnii, familiarly spoken of as "the waters."

At the upper part of the uterus, between it and the membranes, is the placenta, which connects the large blood-vessels of the mother with the vessels in the umbilical cord.

Before labor begins the lower part of the womb is narrow, the neck is stopped up with a large plug of tenacious mucus, and the internal mouth or os is tightly closed.

The First Stage of Labor.

Labor begins with a series of contractions of the womb, lasting about a minute and re-occurring at intervals of from five minutes to half an hour at first, usually of about fifteen minutes. The intervals decrease as labor progresses, finally being reduced to only two or three minutes.

The contractions drive the waters down through the internal mouth into the neck of the uterus, where, covered only by the thin membranes, they dilate the neck and the internal mouth easily and gently. As with repeated contractions the womb becomes smaller and smaller, the head of the child is driven down in the same direction as the bag of waters and further distends the lower part of the uterus and its neck, until at last the neck has been stretched so wide as to be completely obliterated. The same force then proceeds to dilate the outer mouth, or external os, until the latter is big enough to let the head through.

Just as this occurs, the membranes bulging in

front usually rupture, allowing the waters to escape. Sometimes the membranes are so tough that they have to be punctured. When the child is born with the unbroken membranes around it, it is said to be born with a caul. In some cases the membranes rupture early, causing what is known as a dry labor. With the full dilatation of the external os, the first stage ends and the second begins.

The Second Stage of Labor.

During the second stage of labor the head descends through the vagina, advancing slowly and stretching all the tissues before it. Now, not only does the uterus contract, but the abdominal muscles also are brought into play and help to drive the child downward through the birth-canal. The moulding and stretching of the parts to fit the child usually takes about an hour and a half or two hours.

At the end of this time the whole birth-canal will have been fully dilated. The vulva, or external opening, then begins to distend, and when the aperture is sufficiently large, the head passes through, followed shortly after by the rest of the body. With the birth of the child the second stage ends.

The Third Stage of Labor.

After the expulsion of the child the uterus continues to get smaller. As the uterus contracts, the placenta becomes detached from it and lies within the womb until, with further contractions, it is finally driven out into the distended cervix or into the vagina, with the membranes attached to it and trailing after it. Occasionally the membranes remain adherent to the uterus and must be separated by the physician.

Having expelled the placenta, the uterus contracts until its cavity is obliterated. It then remains firmly contracted, squeezing the ends of the blood-vessels that were broken when the placenta was torn loose, and thus preventing hemorrhage. Labor itself terminates with the expulsion of the placenta or after-birth.

The Puerperium.

The period immediately following the delivery of the child and the after-birth, comprising the time consumed by the uterus in regaining its natural size, is spoken of as the puerperal state, puerperium, or lying-in period. In a normal case it lasts six weeks.

The process by which the womb becomes reduced directly after labor to the size of the

healthy, non-pregnant organ is called technically "the involution of the uterus." It is brought about by shrinking of the tissues of the womb, part of them becoming converted into fat and being expelled with the discharges.

This discharge, which always occurs after labor and is called the lochia, consists of blood, degenerating tissue, and the normal secretion of the parts. For the first five days it is red in color, during the next two days becoming yellow, then assuming a whitish color. This last stage lasts until the seventh to the fourteenth day, or even longer.

The amount of the discharge is conveniently estimated by noting the number of napkins or pads soiled in the twenty-four hours. These pads for the first four or five days should not normally have to be changed oftener than six times in the twenty-four hours.

The odor of the discharge is an index as to the condition of the patient. It should resemble that of fresh blood or raw meat while the discharge is red, but thereafter it should be that peculiar to the parts. When decomposition occurs the odor becomes putrid. This is an important danger signal. When it occurs the physician must be notified at once; the woman's life may be in peril.

After-pains.

For several days after labor in women who have already borne children the muscle of the uterus relaxes a little at times. This loosens the hold on the broken blood-vessels and permits them to bleed slightly. The blood that oozes out in this manner collects in the uterine cavity where it forms clots of considerable size. These clots act as an irritant to the womb, exciting it to active contractions in an effort to expel them. The contractions of the uterus cause pains or cramps, which are known as after-pains.

Difficulty of Urination.

The muscles of the abdomen are so worn out and strained after labor that sometimes for several hours or days they cannot act in emptying the bladder, which organ consequently becomes distended and must sometimes be relieved by means of a catheter. This may be used only by a physician or graduate nurse, and only after the failure of the various expedients to induce the voiding of urine voluntarily, described in Chapter XX, on "The Care of the Mother After Labor."

Changes in the Breasts.

During the latter part of pregnancy a thin, glistening fluid, called colostrum, is found in the

breasts, from which it may be squeezed out. Directly after labor it is increased in quantity and becomes a little whiter and more opaque. At the end of about forty-eight hours the breasts undergo a decided change; they suddenly enlarge and may become very tense. Sometimes they are painful and tender on pressure, and impart a hard and lumpy sensation to the touch. The veins under the skin enlarge and show very distinctly. Instead of colostrum, the breasts now contain normal human milk.

CHAPTER XIX.

THE MANAGEMENT OF LABOR.

The Diagnosis of Labor. Duration of Labor. A Talk on Germs. Infection of the Birth Canal. Prevention of Puerperal Infection. Surgical Cleanliness Throughout Labor. The Management of the First Stage of Labor. Management of the Second Stage. Care of the Newborn Infant. Treatment of an Asphyxiated Baby. Care of the Mother During the Third Stage of Labor.

It is not the author's purpose in this chapter to write a treatise on obstetrics. Nor is it his intention to so instruct a woman that she will be qualified to assume full charge of a labor. It must not be supposed that with a few minutes' reading a person can become proficient in what requires years of study and practice to acquire. The delivery of the child is too serious a procedure to be entrusted to any but the most skilful hands. A physician should be engaged whenever possible; next in order of proficiency come the medical student and the midwife.

In assisting the physician, however, a woman can be of great service, especially if she is familiar

with the work required of her. The present chapter will be devoted to instructing a woman in the requisite knowledge that will make her presence valuable in the lying-in room.

Before the date of the expected confinement, which is to be calculated according to one of the methods given, the preparations for it mentioned in Chapter XVII must be made. The occlusive bandages, the abdominal binder and the other articles required, including the baby's clothes and the baby's basket, should be in readiness.

The Diagnosis of Labor.

It is important for a woman to be able to recognize when she is in labor, in order, on the one hand, to summon the physician in time, and on the other, to avoid ludicrous mistakes.

A valuable premonitory sign is the "dropping," or sinking of the child's head in the pelvis, which is associated with a flattening of the upper part of the abdomen and a greater prominence of the lower portion. This may occur over night at the beginning of the last month of pregnancy in women who have never borne children, and two weeks or less before labor in a woman who is already a mother.

The sign that labor has actually begun is the

occurrence of labor pains. These are of a characteristic duration, situation and nature. They last but a minute and are separated by intervals of from five minutes to half an hour, being usually about fifteen minutes apart. The pain is felt in the abdomen or in the back, or it may seem to pass from the navel to the spine.

As the neck of the womb stretches, there is a slight oozing of blood which stains the large plug of mucus that fills the cervical canal. With the further dilatation of the neck or cervix this blood-stained plug of mucus is expelled, when it is know as the "show."

Duration of Labor.

It would be a most desirable thing if one were able to estimate just how long a labor will last. This, however, cannot be done with any degree of accuracy. The duration may vary from one hour or less to many hours and in rare instances to a week or more. Women who have already borne children are in labor on an average about eight hours; those having their first baby must expect to be confined double that time or longer. The probable length of time may often be judged from the history of a woman's previous labors. The process is often much shortened in a strong,

healthy woman who has lived hygienically and has taken plenty of exercise, especially if she has practiced those movements that strengthen the abdominal muscles.

A Talk on Germs.

Disease germs or bacteria are very minute; thousands can be present on the head of a pin without being seen with the naked eye. These microscopic organisms multiply with great rapidity; in the course of several hours two or three individuals can increase to billions. Whenever disease germs get inside the body they manufacture a poison which may produce disease and even cause death. While dangerous wherever found, they are especially so in certain localities, such as the interior of the womb and of the abdomen, in the latter place giving rise to peritonitis.

The introduction of a disease germ into the body is called infection. The presence of such a germ in the body is known as sepsis. Any article that has a germ on it is said to be infected or septic. By disinfecting or sterilizing an object we remove all germs from it and render it aseptic, sterile or surgically clean. There is consequently an important difference between ordinary cleanliness and surgical cleanliness. The former signi-

fies that all dirt has been removed; the latter that all germs as well as dirt are absent.

Infection of the Birth Canal.

Disease germs are never normally present in any of a woman's organs of generation. They must come from without. When present in any part of the birth canal they have as a rule been introduced by the finger or hand, by an implement or instrument, or by water. They can, however, themselves effect an entrance if deposited upon the external parts by one of the agents mentioned or by the bed linen, the body clothing, the mattress, the vulvar pads or by the material used to wash the vulva or external parts (rags, cloths, sponges, cotton, etc.). As soon as any germs have been introduced into the birth canal they are likely to multiply and cause both a local inflammation and a poisoning of the whole system. Such a condition occurring after labor is known to physicians as puerperal infection, puerperal sepsis or puerperal fever, and more popularly as child-bed fever or blood poisoning.

At any time other than during labor or shortly after it, the introduction of germs into the vagina is not attended with such serious results, because the cervix or neck of the womb is usually

tightly closed and shuts off the germs from the parts above. But during the period from the beginning of labor, when the cervix begins to dilate, to the end of the puerperium, when it has firmly contracted again, a germ can easily travel through the open neck, then out the tube, finally entering the abdominal cavity. In the womb the germ produces a septic inflammation; in the tube it may cause an inflammation, going on to the formation of an abscess known as a pus tube; in the abdomen it will set up a peritonitis. All these conditions give rise to blood poisoning.

The Prevention of Puerperal Infection.

Knowing how child-bed fever is caused, it is possible to prevent it. If germs are never introduced into the birth canal they can do no damage there. The entrance of germs is prevented by not inserting into the vagina of a woman in labor, or even bringing in contact with the parts, anything that is not surgically clean. Some women indeed are lucky and may have germs introduced without suffering any evil consequences. But the majority are bound to pay the penalty. Most of the deaths that have occurred during or shortly after child-birth have been caused by puerperal infection, a preventable disease. If a woman

should regard the precautions given in this chapter as being too troublesome and "fussy," let her reflect that they save human lives. Anything less is fraught with danger. No better picture of the result of carelessness and negligence can be given than the one presented by the physician and man of letters, Oliver Wendell Holmes.

"It is as a lesson," he says, "rather than as a reproach, that I call up the memory of the irreparable errors and wrongs. No tongue can tell the heart-breaking calamity they have caused. They have closed the eyes just opened upon a new world of love and happiness; they have bowed the strength of manhood into the dust; they have cast the helplessness of infancy into the stranger's arms, or bequeathed it, with less cruelty, the death of its dying parent. There is no tone deep enough for regret, and no voice loud enough for warning."

Surgical Cleanliness Throughout Labor.

The only way to prevent puerperal infection is to keep disease germs out of the woman's vagina. This is accomplished by observing surgical cleanliness or asepsis. Nothing that is not sterile must enter the birth canal. In addition to this there must be ordinary cleanliness in everything con-

cerning the woman. It is partly on account of their knowledge of asepsis that the physician is to be preferred to the midwife and the trained nurse to the monthly nurse.

It is necessary to follow rigorously all the directions given in Chapter XVII concerning the preparations for the confinement. The room, the bed and the dressings are to be made ready in the manner described. The rules laid down in this and the following chapter must be obeyed to the letter. Only water that has been boiled may be used about the patient, even when it is to be made up into a disinfectant solution. All articles that come in contact with a woman in labor should be boiled for at least five minutes, or if boiling would injure them they should be immersed for half an hour in a disinfectant solution, such as bichlorid of mercury 1 to 1000 or carbolic acid 1 to 20.

But it is not sufficient that everything employed about a woman in labor be rendered aseptic; it must be kept so. The moment a sterile object touches something that is not sterile the object is itself no longer sterile, but has become infected. An instrument that has been boiled remains aseptic or sterile if held in a hand that has been sterilized, but when touched by a hand that has

not been rendered sterile it is no longer surgically clean. Consequently, before they can touch any object or any part of the patient which is to remain sterile, the hands themselves must first be sterilized.

A common and efficient method of sterilizing the hands is to scrub them for ten minutes with a nail brush, tincture of green soap and hot water, the latter being changed several times, and to follow this by a thorough scrubbing with alcohol and then by an immersion for at least two minutes in a 1 to 1000 bichlorid of mercury solution. After this process the hands must not touch anything that is not sterile, for a hand that has been thoroughly sterilized becomes infected as soon as it touches the face or dress or any other object which has not been rendered aseptic. Consequently, should a person with sterile hands inadvertently touch something not surgically clean, should she for example scratch her face or brush her hand against her dress, she must immediately immerse her hands in the bichlorid solution or even scrub them again before so doing.

The Management of the First Stage of Labor.

During labor, only the physician and the nurse should be in the lying-in room. Relatives and

friends whose services are not required should be excluded. It is especially necessary to keep out those loquacious neighbors who delight in describing serious or fatal cases which have come to their notice. The nurse, too, must refrain from alluding to any dangerous or harrowing cases she may have attended.

As stated in Chapter XVII, the first step in the management of a labor is to give an enema of a pint of soapsuds containing a teaspoonful of turpentine. When gonorrhea is known, or suspected, to be present, the vagina should be scrubbed with soap and water and then douched with a 1 to 2000 bichlorid solution. Under ordinary circumstances, however, a douche is undesirable. The hair may be brushed and arranged in two braids. After the bath, given as directed in Chapter XVII, the patient is dressed in a clean nightgown, wrapper and easy slippers. In cold weather she wears in addition a thin woolen undershirt and woolen stockings.

In the daytime the woman may then be up and about, walking about the room, sitting in a chair, or lying on a lounge. During a pain she may obtain some relief by lying down or sitting with the body inclined forward, the hands grasping a chair in front. At night it is better for the

woman to sleep. She is usually ordered to bed when the physician finds upon internal examination that the external os or mouth has reached the size of a silver dollar, although he often waits until the os is fully dilated. After this time the woman should never sit on a closet, but should always use a vessel of some sort.

In this first stage pressure on the end of the spine during a pain will give decided relief and will tend to shorten the labor. By leverage pressing on the tip of the last bone of the spine forces out the upper portion of this bone, thus affording more room for the head to enter the pelvis.

When labor comes on in the daytime, it is necessary at frequent intervals to supply liquid nourishment, such as milk, broths and the like, with a very small quantity of bread, toast or crackers. The woman should drink large quantities of water, plain or effervescent, and may be allowed a moderate amount of tea and coffee.

Many physicians make a practice of giving an anesthetic when the pains become severe. Ether is the safest anesthetic. Ordinarily it is employed not to put the woman to sleep, but merely to obtund the sense of pain. Ether must not be given too long; consequently it is administered as late in the labor as possible, being usually de-

ferred until the second stage, when the abdominal muscles are brought into play. It is important not to give too much ether; therefore the anesthetic is not given until just as the pain is coming on. A light towel is then thrown over the face, and as the patient exhales, a few drops are poured on the towel just below the tip of the nose, so that the vapor is sucked into the lungs as the patient breathes in. It takes only a little ether to obtund the sensibilities, and no more should be given than is necessary for this. As soon as each pain passes off the administration of ether is suspended, to be assumed with the onset of the next pain.

The Management of the Second Stage of Labor.

As the second stage draws near, a large, clean, new sponge or some clean towels should be at hand to catch the waters when they break. With the advent of this stage of labor and the participation in it of the abdominal muscles the woman will want something to pull on to aid her in her bearing-down efforts. To supply this need a "puller" may be made by tying a twisted sheet, a roller towel, or a rope to the foot of the bed. The woman pulls on this while she braces her feet against the footboard of the bed.

During the bearing-down pains of the second stage, decided relief is afforded by pressure made in the small of the back or by a small, hard pillow or a hard roll of some material placed there. This acts in an opposite manner to the pressure that is applied during the first stage. Forcing in the upper portion of the last bone of the spine springs out the lower end and allows more room for the head to leave the pelvis. Suffering is considerably lessened thereby and the labor is shortened.

This probably explains why the patient often feels better when the small of her back is pressed upon by the nurse or rubbed briskly or when a hot water bottle is applied to it. Occasionally washing the patient's face and hands with cold water will prove very grateful. A cramp in the leg may be relieved by forcibly stretching out the limb, at the same time pulling the foot up toward the knee.

As the time of actual delivery approaches, the nurse or attendant must see that everything is at hand. The patient is placed in the desired position on her back or side. If on the latter, a clean pillow should be placed between the knees, or the upper limb should be supported by the nurse. A sterile obstetric pad is then placed beneath the hips and a sterile sheet is draped over the side of

the bed or pinned around the waist with the side next the accoucheur left open and the long end fastened beneath the patient's arm. The physician should have within easy reach a basin containing a disinfectant solution for his hands and another basin containing bits of cotton in an antiseptic solution. Near by should be the material for tying the cord and the scissors for cutting it, all of which must be sterile; a glass containing a warm solution of ten grains of boric acid to the ounce of water, pieces of soft linen and a medicine dropper; and a bottle of fluid extract of ergot, with a teaspoon. Many physicians also like to have in readiness a sterile douche bag, with sterile hot and cooled water and an aseptic bath thermometer.

A warmed blanket must be at hand in which to receive the baby. Hot and cold water, which need not be sterilized, should be easily available in tubs, basins or buckets, for resuscitating the infant in case it be asphyxiated.

Inasmuch as the actual delivery is the work of the physician and of him alone, a description of it here would be out of place. Suffice it to say that the skill of an accoucheur consists in preventing tears and other accidents and in meeting the various complications as they arise.

As soon as the baby's head is delivered the eyes are wiped with a piece of soft linen soaked in the boric acid solution, more of the solution being introduced later with a medicine dropper

Care of the New-Born Infant.

Immediately after birth the baby is held by its thighs and legs, head downward, while the physician crooks his little finger, covered, or not, with a piece of old linen and introduces it in the baby's throat back of the tongue, so as to clear the air passages of any blood or mucus that may have been inspired during the passage through the birth canal. The infant is then wrapped in a warmed towel and laid upon its right side with its face turned away from its mother. As soon as the umbilical cord has ceased to beat it is tied about two fingers' breadth from the child's body with a firm double knot, the ends of the string being then tied first with a single and then with a bow knot. The physician next places his hand upon the baby's abdomen so that the cord lies between the fingers, and holding the scissors close to those fingers with his other hand, cuts the cord off on the outer side of the knot. The child is then wrapped in a warm blanket and put in a safe place, preferably its basket or crib.

A premature child is best cared for in an incubator. Where one is not at hand a clothes basket, bath-tub, or wooden box may be used. This should be lined first with heavy wrapping paper and then with heated cotton or blankets and filled for half its depth with cotton wool. The child is laid in this and surrounded with hot water cans or bottles, and covered all but its face and bottom with lamb's wool, cotton wool or cotton batting, held in place by gauze bandages. A piece of absorbent cotton or wool should be placed between the child's thighs. A blanket or shawl then covers the basket with the exception of the baby's head. The incubator is to be kept at a temperature of between 85 and 95 degrees Fahrenheit.

Treatment of an Asphyxiated Baby.

If the child does not breathe after birth, the cord should be immediately tied and cut as described above, and one of the following methods of inducing artificial respiration, or all in succession, should be tried. The child may be alternately folded and unfolded like a book. It may be supported by the feet, with the forehead resting on a table, while light compression with the thumb and fingers is made on its chest about twenty times a minute. Wrapped in a towel and

grasped by the shoulders, the baby may be swung first between the physician's knees and then over his shoulders. Another method is to stretch the baby's arms high above its head and then press them down to its sides. The child's neck may be placed over a mug, and through a clean towel spread over the child's face the physician may very gently blow a little air into the child's mouth. Slapping the buttocks and rubbing the back and chest vigorously may start the breathing. The infant should frequently be placed in a hot bath to prevent chilling. While in such a bath ice water may be poured on the chest and abdomen. Sometimes the shock of placing the baby alternately in hot and cold water will stimulate the respirations.

Care of the Mother During the Third Stage of Labor.

Meanwhile the mother must be receiving attention. As soon as the child's body is born she is given a teaspoonful of the fluid extract of ergot in a little water. At the same time the womb is grasped through the abdominal wall, with the thumb in front and the fingers behind, and is rubbed, kneaded, squeezed and pressed upon to stimulate it to contract and thus prevent hemorrhage. After a while the uterus will be felt to

contract firmly. Then during a pain the physician presses down the womb and squeezes out the after-birth. The kneading and pressing are continued for fifteen minutes more. All the soiled towels and pads are then removed, the parts cleaned, and those sheets known as "the temporary bed" slipped out. A sterile, folded, dry, warmed sheet, or another sterile obstetric pad, is then placed under the patient. A pad, or compress, consisting of one or two folded towels, is laid above the navel, and the binder is adjusted so as to reach from the ribs to the hip bones, being pinned from above downward so as to fit snugly. Then with surgically clean hands the occlusive bandage is applied between the thighs and pinned to the binder both in front and behind.

CHAPTER XX.

THE CARE OF THE MOTHER AFTER LABOR.

Rest and Quiet. Hygienic Regime. Rules Concerning Urination. Attention to the Bladder and Bowels. Care of the Breasts. Congested and Distended Breasts.

The chief concern of both physician and nurse in charge of a woman after labor is the prevention of infection. This is attained by the same precautions in regard to surgical cleanliness as were necessary during the labor itself. Absolute cleanliness of the patient, of every one who attends her and of everything that comes in contact with her, will usually avert the commonest and most fatal complication of this period—puerperal sepsis. This is by far the most important consideration. There are other matters, however, which add to the comfort and safety of the patient.

The life of the woman requires careful regulation both during the period immediately following labor and throughout the whole of lactation.

The character of her milk is affected by her mode of living.

Rest and Quiet.

Absolute mental and physical rest is necessary for the first few days after labor. The patient must not be disturbed by loud noises or by a glaring light. For these first few days no extended conversation should be allowed in the lying-in room.

After delivery it is customary for the woman to lie flat on her back, for the first six hours without a pillow. As soon as she feels rested and comfortable and there is no longer any danger from hemorrhage or relaxation of the womb, she may move about in bed, turn on either side or lie upon the abdomen, and after several days the shoulders may be raised a little. She is then gradually propped up higher in bed until in a few days she can be placed in a sitting position.

The patient should be kept in bed until the womb has so shrunken in size that it has again returned to the pelvis, and until there is no longer any blood in the lochial discharge. This state usually is reached in from ten to fourteen days. A safe rule would be for the woman to remain strictly confined to the bed for two weeks. If she gets up beforehand her womb is liable to be displaced. After the fourteenth day she may put on stockings, bedroom slippers and a flannel wrap-

per and pass the day upon a lounge, rising to use the commode and sitting up as long at a time as she can without fatigue. In many cases she does not walk about the room for a week longer or go down stairs until the end of the fourth week. These directions, however, are subject to variation, to suit the individual case.

The only visitors to be allowed in the lying-in room are the patient's husband and mother, who must not come too frequently, and may remain for but a short time, being careful to avoid exciting subjects in their conversation. All others are to be excluded during the first week. After this period the patient's relatives and intimate friends may see her for a few minutes, if they be of cheerful disposition. But the nurse must keep out those inquisitive "busy-bodies" who often come pouring into the room inquiring minutely as to the particulars of the case and offering suggestions and advice based on their experience with cases which they believe to have been similar and which they want to describe in detail.

Hygienic Regime.

The diet during the first three days should be very light, consisting chiefly of milk, with the addition of toast or crackers, gruel mush, grits or

boiled rice and a little stewed fruit or baked apples. Gradually, during the first week, soft-boiled eggs, custard, junket, light puddings, broths, soups, jelly, sponge cake, ice cream, a charlotte russe, fresh fruit and vegetables are added to the dietary. The white meat of fowls, sweetbread, lamb chops, fish and oysters may be given during the second week, and beef, bacon and potatoes during the third week. The puerperal woman must avoid rich and indigestible foods and alcoholic drinks. It is necessary throughout the whole of lactation, the period during which she nurses her baby, for the mother to be careful to eat only what is digestible and nutritious.

Regular exercise in the open air is also important, care being taken to keep the nursing mother, so far as possible, free from fatigue, both mental and physical, and also from worry, anxiety or nervous excitement. Late hours are always to be avoided. Inasmuch as a powerful emotion, such as fright or violent anger, may render her milk unfit for use, a woman who has been subjected to such an influence should avoid nursing her baby for some hours afterward, emptying her breasts by means of a breast pump and giving the child barley water for one or two feedings.

In the morning, about an hour after breakfast, the patient is bathed in tepid water with a wash-rag and soap. In the evening she may receive a light alcohol rub.

The genital region should be cleansed and dressed every four hours and after each evacuation of the bladder or rectum. The nurse, after seeing that everything she requires is at hand, places the patient on a douche pan and arranges the coverings. She then sterilizes her hands and, gently separating the labia, pours on the parts from a pitcher a disinfectant solution, such as a 1 to 2000 bichlorid solution. The parts are then dried with bits of sterile cotton, and a fresh sterile occlusive dressing, made as described in Chapter XVII, is applied, being held in place by a T bandage or by pinning its ends to the abdominal binder.

Attention to the Bladder and Bowels.

After labor there frequently is a tendency to retention of urine. If the woman is unable to pass her urine, relief may sometimes be obtained by placing her on a warm bed pan or douche pan half full of warm water. If this fails, a hot application, such as a turpentine stupe, may in addition be made over the kidneys, bladder or ex-

ternal parts, or a clean sponge or a large piece of cotton, wet with warm sterile water, placed between her thighs, or the patient may listen to the sound of running water. Often if left to herself the patient is better able to urinate. Sometimes if raised by means of pillows to a semi-recumbent or a sitting position she can then empty her bladder. If these expedients fail and no urine has been passed six hours after labor, resort must be had to catheterization. This can be entrusted only to the skilled hands of the physician or the trained nurse, and must be performed aseptically with all the precautions required by surgical cleanliness. Should any germs enter the bladder, they may set up an inflammation that is very difficult to cure. After this, the woman is to be catheterized three times a day if necessary, in every instance recourse having first been made to each of the expedients mentioned above.

Constipation is the rule after labor. At the end of forty-eight hours it is well to administer a laxative of some sort. The choice of the drug employed will depend upon the patient's inclination or prejudice. Castor oil may be given in warm milk or in a frothy liquid, such as porter or soda water. A good plan is to give half a

bottle of citrate of magnesia on the evening of the second day after labor, and the other half the following morning before breakfast. If the bowels do not move within two hours an enema should be given.

Care of the Breasts.

The infant is nursed at regular intervals of two hours at first. Should the child die, mechanical measures for emptying the breasts will be necessary, a breast pump being usually employed, the breasts at the same time being rubbed and massaged with oiled finger tips in a direction toward the nipple. Sometimes the use of massage and the breast pump is required to supplement the child's sucking when the latter is not sufficient to thoroughly evacuate the breasts.

The observance of care and cleanliness in regard to the breasts and nipples is the best preventative of subsequent trouble. The breasts should never be handled by either the nurse or the patient with fingers that are not thoroughly clean.

It is important after each nursing to wash the nipples by means of some absorbent cotton with warm or cold water and castile soap, or with a solution of boric acid, 10 grains to the ounce, and to dry them with a soft cloth. The skin of the

nipple and the surrounding parts are then anointed with sterile olive oil or sterile cocoa butter applied by means of fresh absorbent cotton or a piece of clean linen. A supersensitive nipple may often be relieved with extract of witch hazel.

A nipple shield will have to be used when the nipple becomes chapped or cracked or when it is very tender or of such a size and shape that the baby cannot obtain a satisfactory hold. A glass shield with a rubber nipple is the one most frequently employed. It should be simple and should fit tightly. If filled with warm milk and inverted over the nipple the child will often take it better. After being used it should be boiled and then kept in a boric acid solution.

A depressed nipple may be drawn out by means of the breast pump, suction being applied by a rubber bulb or by the mouth through a piece of rubber tubing, or a bottle may be filled with very hot water, emptied rapidly, and quickly inverted over the nipple.

The support of the patient's breasts by means of the mammary binder will increase her comfort and may prevent serious disturbances. There are many forms of this binder. The simplest is a straight bandage of unbleached muslin, properly shaped by darts, applied with a compress un-

der the outer portion of each breast. The Murphy binder is likewise made from a straight piece of muslin, but has a notch for the neck and two deeper notches for the arms. Another bandage can be made out of a handkerchief which is folded as a triangle, passed under the breasts and tied behind the neck, the lower end being fastened with safety pins to the abdominal binder or to a strip of muslin, or a bandage, tied around the waist. One handkerchief may be applied to each breast. The obstetrical breast support with knitted bosom is much less cumbersome and therefore more desirable when the patient is out of bed.

Congested and Distended Breasts.

When the flow of milk is excessive, the breasts may become distended, or even congested, despite all care. Congestion is apt to occur shortly after the breasts assume their function of supplying milk. Both conditions are treated by dietetic and other measures. A purge must always be given. Covering the breasts with sterile gauze will soak up the leakage and prevent it from soiling the clothing. Should the milk fail to escape, a condition known as caked breast results. This is best treated by washing the breasts with soap and water just before the child is nursed, or the breast

pump is applied, and then with aseptic hands gently rubbing warm sterile olive oil on them for ten to twenty minutes, massaging them from below upward and from the base toward the nipple.

Preceding the massage, hot fomentations, or cloths soaked in lead water and laudanum, may be applied for fifteen to twenty minutes, care being taken to cleanse the nipple thoroughly before putting it in the baby's mouth. When inflammation or an abscess develops, the baby must be immediately taken from the breast and the physician summoned.

CHAPTER XXI.

THE CARE OF THE BABY.

The High Mortality of Infants. The New-Born Baby. The Baby's Weight. Regulation of the Bowels. The Baby's Food. Breast Feeding. Modifying the Breast Milk. Bottle Feeding. Bottle and Nipple. When the Bottle Disagrees. The Feeding of Older Children. Water. The Baby's Clothing. Bathing the Baby. Sleep and Rest. Exercise and Fresh Air. Digestive Disorders of Infancy. Colic. Contagious Diseases.

A professor of children's diseases in a New York medical college states in a book written for physicians that the chief requisite to the successful treatment of children is the education of the mother. A well-informed mother, instructed in the rudiments of the child's care, is regarded by him as having her usefulness as a mother increased tenfold. "The children of such mothers," he declares, "as the result of a properly regulated life, have better appetites and less illness; they are stronger and more vigorous than those indifferently cared for. If disease attacks them, they make more prompt and satisfactory

recoveries; if an operation is required, intelligent mothers appreciate its necessity. As children, their offspring are better specimens of the race, and as adults, they will always have reason to be thankful that their mothers were educated and efficient in child management."

The High Mortality of Infants.

The average mother regards herself as perfectly competent to look after her baby. Little does she realize that from one-third to one-fifth of all the babies born alive die during their first year, ten per cent. before they reach the age of four weeks. When we reflect that most of these deaths—at least half—are preventable, we appreciate the fact that the majority of women are really ignorant as to the proper care of their infants. One of the most important duties therefore of the mother and of the prospective mother is to acquaint herself with the hygienic management of children.

The New-Born Baby.

The baby's skin is red at birth and covered with a waxy substance, which is removed by smearing the baby all over with olive oil, purified white vaseline or washed unsalted lard, and then bathing it. The head at first has an abnormal

shape due to the prolonged pressure it experienced in passing through the birth canal, but in a few days or so it resumes its normal appearance. This, however, must be left to nature, and no attempt made to mold the head into shape. Just behind the forehead the bone is absent over a diamond-shaped area about three-quarters of an inch to an inch and a quarter long and seven-eighths of an inch wide. This space, known as the anterior fontanelle, begins to close at the beginning of the second year and normally disappears by the twentieth month. In handling an infant one must be careful to avoid pressure on it. When the baby is poorly nourished and the system lacks fluid this spot is depressed.

The Baby's Weight.

Six to nine pounds is the average weight at birth. During the first five days of life an infant loses usually from four to six ounces and then gains about an ounce a day until the end of the second month. For the next two months the daily gain is about three-quarters of an ounce, after which a pound a month is the average gain throughout the rest of the first year. Five and one-half to seven pounds are usually added during the first year.

The baby should be weighed regularly, the scoop and platform scale used by grocers being satisfactory for this purpose and inexpensive. When a baby does not gain on the average at least four ounces a week, it cannot be said to be doing well. A physician should then be consulted to determine what is at fault.

The Bowel Function.

The bowels of a new-born infant usually move once or twice during the first day of life, the passage for the first two or three days consisting of a thick, sticky, odorless, black or greenish-black substance, called meconium. After this for the first six weeks there are as a rule two to four movements a day, golden yellow in color, showing a large proportion of water, having very little odor, and frequently containing small masses or curds. From this age to that of two years the bowels move normally but once to three times a day, the passage being of greater consistency and a little darker in color and having a rather more fetid odor.

At least one free evacuation of the bowels is required in twenty-four hours. If the bowels have not moved by bedtime an enema of from four to eight ounces of soap and water, or a small

glycerin suppository, should be given. The habit of having an evacuation at a certain time each day can be formed by placing a five or six months old child on a small chamber immediately after the morning bottle. The mother at this time may make some sound that the child will learn to associate with the act.

More than four passages in twenty-four hours indicate that something is wrong with the digestive tract and requires attention. An acute intestinal disturbance may often be cut short if checked in time. One of the predisposing causes of summer complaint is a chronic winter indigestion which has weakened the resistance of the intestines.

The Baby's Food.

There is only one food nature intended for a baby—its mother's milk. Cow's milk is intended primarily for a calf, whose digestive tract is entirely different from that of an infant. The full grown stomach can digest all sorts of food—the horse's oats, the cow's bran, the rabbit's lettuce, the lion's animal flesh. There is scarcely an animal or vegetable that civilized man cannot eat and digest. A baby, however, is born with a stomach that is but partially developed, fitted

only to digest human milk. That is why it is so difficult to bring up a baby on the bottle; why so many bottle-fed babies die.

Breast Feeding.

Most mothers can nurse their babies. Especially is this true when they have lived the hygienic life outlined in this book. When the milk is insufficient, measures can often be adopted to increase it or to supplement it with one or more bottles.

Regularity in nursing affects favorably the baby and the breasts. It inculcates in the former a habit of desiring to be fed only at the regular feeding hour. The quality and quantity of the milk tends to remain uniform when the breasts are emptied at definite intervals.

A baby may be put to the breast about eight hours after it is born, and then about four to six times in the twenty-four hours for the first two days of its life. This merely stimulates the secretion of milk and draws out the nipples into good shape for nursing. During this time the infant may be given every two hours one-half to one ounce of moderately hot water, containing a small pinch of sugar, or, if ravenously hungry, a very little modified cow's milk.

Thereafter the baby should be nursed during the day every two hours for the first five weeks, every two hours and a half from the sixth to the twelfth week, every three hours from the third to the ninth month, and every three hours and a half from then until the twelfth month. At night one or two nursings are allowed during the first week, but after this for the first five months only one—at ten o'clock. After the fifth month the baby does not require to be nursed at night. It is wrong to feed the baby oftener than this; but should it be asleep at its feeding time, which seldom occurs, it need not be disturbed but may be nursed when it awakens.

Modifying the Breast Milk.

The healthy normal baby does not want to nurse oftener than the above; it appears satisfied after nursing and during the first three months drops off to sleep immediately afterward; it may awaken and seem restless as the feeding time approaches and usually cries if the nursing is delayed; it gains not less than four ounces weekly. But if a baby cries some time before the nursing hour, if it appears restless and does not sleep, if it loses or remains stationary in weight or gains but three ounces a week or less, if it regurgitates

or vomits or suffers from diarrhea or colic, there is probably some trouble with the food. The milk may be insufficient or excessive in its total quantity or in one of its ingredients. The mother should thereupon consult her physician, who will be able to suggest expedients for altering the quantity or quality of the milk. A woman can herself reduce the quantity of her milk by drinking less, and can increase it by drinking large quantities of water, thin cornmeal gruel, milk and cocoa—at least three quarts of fluid in twenty-four hours. Tea, coffee, ale, porter, and beer are not suitable for a nursing mother. The thin cornmeal gruel is easily made by adding one or two tablespoonfuls of yellow cornmeal to a quart of water or milk and boiling it for five hours in a double boiler with the lid on. It may be flavored by putting in ten or fifteen large raisins, a little salt and nutmeg. It is kept on ice and drunk from a bowl two or three times a day, preferably between meals and at bedtime.

In habitual vomiting due to overfeeding it may be necessary to shorten the nursing period. When the baby has colic after nursing, in the absence of a physician, the mother may give it one to six tablespoonfuls of plain boiled water or barley-water immediately before each nursing. If the

baby shows signs of hunger despite all efforts to increase the supply of milk it will usually be necessary to employ mixed feeding. A tablespoonful or more of barley-water or modified cow's milk may be given before or after nursing, especially in the case of recently born infants, or a bottle of modified cow's milk may be substituted for the breast at one or more of the feeding periods. In all cases of indigestion and of continued insufficient feeding a physician should be consulted. It may prove disastrous for the mother to experiment.

The duration of nursing ought not to exceed fifteen minutes. After each feeding the baby's mouth should be washed out with a soft rag dipped in a solution of ten grains of boric acid in an ounce of water.

Bottle Feeding.

Occasionally a mother cannot nurse her baby, in which case resort must be had to a wet-nurse or to that poor substitute, the bottle. The point to be realized at the outset is the impossibility of imitating human milk. We now no longer even make such an attempt. Our object in artificial feeding is twofold: to give the baby a food it can digest and one that will nourish it. The usual

method is to give cow's milk modified by the addition of water, lime-water, barley-water, oatmeal-water, bicarbonate of soda, citrate of soda, peptonizing powder, patent infant food, or lactic acid germs, or by boiling. The milk in the first place must be clean and free from germs; should germs be present they must be killed by pasteurization or sterilization. There is not the space to discuss fully in this chapter the vast subject of artificial infant feeding. It is best in every case to have a physician prescribe what the baby is to be given.

The table on the following page gives the number of feedings, the amount to be given at one time, the intervals between bottles during the day and the hours of night feedings, arranged according to the baby's age.

These are the average figures for a normal baby and may have to be varied in accordance with the physician's judgment to suit the individual case.

Bottle and Nipple.

It is necessary for bottles and nipples to be kept scrupulously clean; else they will contaminate the milk. A cylindrical bottle, smooth inside and without angles or depressions, is best as it is easily cleansed. As soon as the baby has finished with it, the bottle must be taken away, emptied of any

Age.	Number of feedings.	Amount at each feeding.	Interval during the day.	Hours of night feeding.
Third to seventh day	10	1 oz.	2 hrs.	10 P. M. and 4 A. M.
Second week	10	1½ ozs.	2 hrs.	10 P. M. and 4 A. M.
Third week	10	2 ozs.	2 hrs.	10 P. M.
Third to sixth week	9	2½ ozs.	2 hrs.	10 P. M.
Sixth week to third month	8	3 to 4 ozs.	2½ hrs.	10 P. M.
Third to fifth month	7	4 to 5 ozs.	2½ hrs.	10 P. M.
Fifth to seventh month	6	5 to 6 ozs.	3 hrs.	None
Seventh to ninth month	6	7 ozs.	3 hrs.	None
Ninth to twelfth month	5	8½ ozs.	3 hrs.	None

milk that may remain, rinsed well and placed in a strong solution of washing soda. Every evening the bottles should be removed from this solution and scrubbed inside with a bristle brush. Just before filling them it is important to rinse the bottles in clear water and place them in boiling water for ten minutes.

At least two straight, conical rubber nipples are needed, preferably of black rubber, with holes of such a size that when the bottle is inverted the milk drops easily from it but does not run too fast or in a stream. The form of nipple which is attached to the bottle by a long rubber or glass tube must never be used, as it is impossible to keep the tube clean.

Immediately after nursing, the nipple should be removed from the bottle, scrubbed thoroughly with a soft bristle brush at first outside and, after being inverted, inside as well. It should then be placed in a solution containing two teaspoonfuls of boric acid to a glass of water and kept there until used again. Once a day all the nipples should be boiled for five minutes in water containing a little table salt, the addition of which prevents the rubber from softening. Before being used the nipple is to be dipped for a moment in hot water.

When the Bottle Disagrees.

The symptoms of starvation and indigestion are the same in a bottle-fed baby as in an infant on the breast. When they occur it is necessary to consult a physician. The mother should bear in mind that delay often means death.

It may happen when there is no physician available that a mother has to put her baby on the bottle or has to make a change in the mixture she has been giving. In the presence of indigestion plain barley-water should be given for a few days. It may be made from the washed barley grains or from prepared barley flour. In the former instance two tablespoonfuls of washed pearl barley are put with a pint of cold filtered water in a saucepan and boiled for several hours slowly down to two-thirds and then strained. The other method is to beat up one or two heaping tablespoonfuls of barley flour with enough water to make a thin paste, which is placed in a double boiler, covered with a quart of cold water, stirred, boiled for at least fifteen minutes, and strained while hot through coarse muslin. In making up the first milk mixture an amount is prepared in accordance with the child's age as expressed in the table on page 194. Three-quarters of this should be barley-water and one-quarter of it clean,

fresh raw milk. For every ounce of barley-water used half a level teaspoonful of sugar should be added—preferably milk-sugar. When the milk is positively known to be clean, fresh and pure, the baby's bottle can be placed in a cup of cold water and gradually heated to 95 or 100 degrees. If there is any question about the purity of the milk, however, it is best to bring the prepared milk to the boiling point or to actually boil it, then holding the bottles under the spigot, to cool them rapidly with running water, and place them upon the ice.

If this mixture agrees, the proportion after several days or a week can be made three-eighths milk and five-eighths sweetened barley-water, and later equal parts of each. This will usually be strong enough for a young baby. If it still appears hungry, however, the total quantity given in the bottle may be increased. The baby usually will take only what it needs and leave the rest. If the baby appears satisfied at the time but fails to gain sufficiently, does not sleep properly, and cries before the feeding time, the strength of the milk can be very gradually increased further. It is not safe for an uninstructed mother to give a mixture containing more than three-quarters milk to a baby under eight months of age. Should the

first mixture suggested disagree, the proportion of milk should be reduced to one-eighth and the mixture boiled. If this disagrees the mother must experiment no further.

The modifications just described are only for emergencies where no physician is available. They do not furnish the proper food for the individual child, but merely something that may agree with the baby and nourish it temporarily.

The Feeding of Older Children.

About the twelfth month the child is given oatmeal, barley or wheat jelly, made by cooking the cereal for three hours the day before it is eaten and straining it through a colander. A year old baby may be given chicken or mutton broth, stale bread and butter or zwieback and butter, and orange juice. From then up to the fifteenth month the following articles may be gradually added to the diet: rice in the broth, a soft boiled egg, apple sauce, baked apple, prune pulp, and one to three teaspoonfuls of scraped rare beef, mixed with an equal quantity of stale bread and moistened with beef juice. Between the fifteenth and the eighteenth months the baby may have beef broth, a thoroughly baked white potato mixed with butter and salt, farina, cream of

wheat, custard, cornstarch, plain rice pudding, junket and stewed prunes. From the eighteenth month to the second year the following additions are permissible: cornmeal and oatmeal porridge, hominy, mixed or scraped rare beef, the heart of a lamb chop finely cut, chicken, spinach, asparagus tips, squash, strained stewed tomatoes, stewed carrots, mashed cauliflower, soda, Graham or oatmeal biscuit.

During its second year the baby is given four meals daily at regular hours, 7 and 11 A. M. and 3 and 6 P. M., the orange juice being given usually at 9 A. M. Nothing is to be given between meals. From the different foods allowed the mother selects a suitable meal. Each new article must be carefully prepared and given at first in very small quantities, the child's ability to digest it being carefully observed. When one article is taken without difficulty another is tried, the increase in diet being gradually and cautiously made.

Water.

The baby gets thirsty as well as hungry. From the time of its birth it needs water, especially in the summer, and should be given cooled boiled water several times a day from a teaspoon, glass, cup, or nursing bottle.

The Baby's Clothing.

Wool is the best material for a baby's underwear, the weight varying with the season. The clothes should be loose so as to allow sufficient freedom of motion. A circular band of knitted wool, made, as a rule, with shoulder straps and with a little tab in front to be fastened to the diaper, is the preferable form of abdominal binder, but one may use instead a strip of soft flannel twenty inches in length, cut bias, which is usually fastened to the shirt. The binder should extend from the hips to the lower ribs, but must not be too tight.

Diapers are best made from soft light weight goods that absorb readily, such as bird's-eye cotton; never from canton flannel or waterproof material. They must be changed as soon as soiled. They are then to be washed with pure soap, without soda, and thoroughly dried before being reapplied.

A baby's socks are crocheted or knitted of silk or soft fine yarn and should reach fully half way to the knee. Moccasins of chamois, leather, kid or felt form excellent covering for the feet before the baby begins to stand or creep. It is important for the first shoes to be large, well shaped, and made of soft, pliable leather.

At night the child is dressed in an entirely different set of clothes.

Bathing the Baby.

The baby should be bathed daily at a regular time, such as ten o'clock in the morning, midway between two feedings. After its head has been wetted, it is placed in a tub of water of about 95 degrees F. and washed for about five minutes with a soft wash rag and (except on the face) with pure soap. The baby then may immediately be given a brief rub with cool water. On being removed from the water the baby is enveloped in a towel and patted thoroughly dry, after which it is rubbed gently all over with the palm of the hand, powdered where two skin surfaces come in contact, and dressed.

After each bowel movement the lower parts of the baby's body are sponged with warm water, but without soap, and carefully dried. When chafing occurs the parts should be cleansed very gently with starch-water, dried with a soft clean towel, and dusted with talcum powder.

Sleep and Rest.

A healthy, well-fed new-born infant sleeps practically all the time. For the first month a

baby will sleep twenty-two hours out of every twenty-four, and during the second and third months twenty to twenty-two hours. If the baby does not sleep, something is wrong. In all probability it has indigestion or is not getting enough to eat. A six months old baby should sleep from 6 P. M to 6 A. M. without interruption, and should have a two-hour nap during the morning and another two-hour nap in the afternoon before 3 o'clock. Until it is six years of age the child requires twelve hours of sleep. From the twelfth to the eighteenth or twenty-fourth month one hour is sufficient for the morning nap, which is given up after the second year. The afternoon rest may be shortened to an hour and a half at this age, being continued until the child is six years of age or even older, especially if he is inclined to be delicate.

The properly trained baby never needs to be rocked or patted to sleep. It merely is laid in its crib and promptly drops off to sleep. This training, however, should begin as soon as a baby is born. A new-born infant may be taken up to be nursed, to be washed and to be changed, but for nothing else. At all other times throughout its whole infancy it lies on its bed or blanket, except when it is being taken out. It must never be put

to sleep in the arms. When good and quiet, however, it may be held in the arms for a few minutes several times a day. But it must never be picked up and rocked merely because it cries, unless, of course, it is sick. Crying usually indicates hunger, discomfort due to a soiled diaper, pain due to colic, and spoiling. A child not properly trained from birth is usually accustomed to being picked up on crying and will probably require several days firm discipline before it realizes that crying will not cause it to be rocked; but the habit of going to sleep on being laid down is easily gained, provided the baby has sufficient food of proper character and is free from pain.

Exercise and Fresh Air.

The baby's best playground when it is young is a large clothes-basket, or a large, padded box, in which a thick blanket and a pillow have been placed, and a creeping pen or exercise pen when he begins to stand and makes attempts at walking. The floor is both dirty and draughty.

The baby requires fresh air twenty-four hours out of every twenty-four. Its room therefore should be well ventilated. In the summer a baby may be taken out of doors when a month old or less. The outing is often postponed in the winter

until the child is two or three months old. Extreme cold and wind are bad for the baby. During inclement weather the baby may be dressed as for going outdoors and all the windows on one side of the room may then be thrown wide open, the doors being closed.

Digestive Disorders of Infancy.

When the baby gets sick the proper thing to do is to send for the doctor. Nevertheless there are certain things a mother should know, so as to be able to obey the physician's orders intelligently and be of assistance to him.

Digestive disturbances are the commonest disorders of infancy. They are usually due directly to faulty feeding.

Want of sunlight and fresh air, insufficient clothing, filth, and above all hot weather, especially when murky or humid, are indeed active factors in reducing the baby's resistive power and lowering its strength and vitality, so that its organs are easily disturbed and lose the power to fight germs. But what upsets the digestive system and introduces germs into it is bad and unsuitable food.

The acute intestinal diseases that occur in the summer, known familiarly as summer complaint

or summer diarrhea, which carry off so many babies each year, are therefore in a large measure preventable. They are prevented first of all by feeding only milk that is absolutely clean or germ-free. The next most important preventive measure is to keep the baby and its digestive organs strong and resistant. By proper feeding and prompt correction of digestive disturbances at all times, the bowel is rendered better able to resist the germs when introduced during the hot weather. Proper hygiene—fresh air, proper bathing, proper clothing, all aid in making the child sturdy and strong.

Above all the mother must realize that an attack of diarrhea or vomiting, or even a green undigested stool, occurring in an infant under eighteen months of age during hot weather, is a serious matter requiring prompt attention. When any of these occur she should stop the milk at once, administer a teaspoonful of castor oil mixed with a teaspoonful of aromatic syrup of rhubarb, give every two or three hours a bottle of barley-water containing about half a level teaspoonful of milk-sugar to the ounce, and send for the doctor.

Under no circumstances must she give the child paregoric or any of the patent medicines for

summer complaint or diarrhea, all of which contain opium, a drug poisonous to babies even in minute doses.

Colic.

When a baby is subject to colic it is the province of the family physician to investigate the cause. If colic in a nursing baby is due to constipation in the mother, the remedy is plain; when due to too much or too strong milk or to too frequent nursings, it can often be relieved by feeding less and pumping out what milk is left in the breasts, by giving plain water or barley-water before each nursing, or by increasing the interval between nursings. In a bottle-fed baby the physician must adapt the food to the baby's digestive capacity.

For the attack itself a mother may give an enema at 110 degrees F. of soapsuds or of eight ounces of water containing a teaspoonful of salt, she may administer every half hour or hour twenty drops to a teaspoonful of soda mint mixed with an equal quantity of hot water, and she may place over the abdomen a spice plaster or other hot application. Soothing syrups, baby cures, laudanum and paregoric must all be avoided. They may kill the child.

Contagious Diseases.

The contagious diseases that occur most frequently in children are tonsilitis, influenza or grip, measles, rubella or German measles, chicken pox, mumps, whooping cough, diphtheria and membranous croup, scarlet fever, acute conjunctivitis or pink eye, scabies or the itch, and tuberculosis or consumption. Each disease may appear in a very severe or in a very mild form. The latter is the more dangerous to others because seldom recognized. When a child has a severe attack of measles, diphtheria or scarlet fever, the mother usually realizes that something serious is the matter and sends for the physician, who diagnoses the case and orders strict isolation, instructing the mother how to disinfect everything that comes out of the sick room. But sometimes the child with measles is scarcely sick at all and merely has a very slight rash, which the mother calls a stomach rash. Diphtheria often appears in the form of a mild sore throat, that does not hinder the child from playing about as usual. A little vomiting and a slight redness of the skin lasting for a day or so may be the only symptoms of scarlet fever until the skin begins to peel a couple of weeks later. In all cases of illness therefore it is best to send at once for the doctor.

The mother would do well to remember that a child may be able to give a disease to others for some time after it appears well. This is particularly true in measles, scarlet fever, diphtheria and mumps. Some diseases, moreover, such as measles and whooping cough, are contagious before their most characteristic symptoms appear.

As to the method of treatment and nursing, the character and duration of the isolation, and above all the diagnosis of these diseases, one must be guided absolutely by the attending physician.

CHAPTER XXII.

THE CAUSES OF WOMEN'S DISEASES AND THEIR REMOVAL.

Mismanagement During Childbirth. Imprudence after Labor. Artificial Termination of Pregnancy. Unhygienic Marital Relations. Personal Purity a Factor. Chronic Constipation. The Majority of Women's Diseases Preventable.

Much of the sickness, disability, pain and discomfort from which women suffer can be avoided, being for the most part due to ignorance and neglect. Among the more frequent causes of disorders peculiar to women are imprudence and neglect during and after childbirth, artificial termination of pregnancy, unhygienic marital relations, infection from a diseased husband, chronic constipation, and disregard of the laws of hygiene. Prevention, therefore, lies to a great extent in a woman's own hands.

Mismanagement During Childbirth.

The chronic invalidism common among married women results in many cases from bad man-

agement, imprudence, carelessness, or neglect, either at the time of labor or during the weeks immediately following it. Most frequently it is due to lacerations received during the passage of the child, but which have never been repaired, and sometimes not even recognized. When a midwife has been employed instead of a physician this mismanagement is more liable to occur. Midwives, as a rule, are unable to recognize any but the most conspicuous injuries, and in many instances they are utterly incompetent to prevent lacerations.

An unrepaired laceration or tear that has occurred during labor is a common cause of a backward displacement of the womb, and especially of falling of the womb. Prompt repair of a laceration occurring during childbirth may sometimes prevent cancer, which frequently begins at the site of an old tear of the neck of the womb which has never received attention.

Another cause of disease having its origin in childbirth is the absence of surgical cleanliness on the part of the nurse in connection with everything that pertains to her patient. The prevention of an acute inflammation of the womb, for instance, lies in the observance of surgical cleanliness by physician, nurse, and patient both during

and after a labor or miscarriage. If everything—hand, instrument, dressing—that touches the private parts is surgically clean, and if the directions given in Chapters XVII, XIX and XX are strictly observed, such a complication will be prevented. Observance of surgical cleanliness during and after a labor or miscarriage will also prevent acute inflammation of the Fallopian tubes, which is a septic infection or poisoning usually due to an extension from an acutely inflamed womb. This condition consequently may occur after a criminal abortion, miscarriage or labor in which infection has occurred. It frequently leads to peritonitis or blood poisoning, which may go on to a fatal termination, or may require a dangerous operation in order to save the woman. This is one of the reasons why any one who submits to a criminal abortion runs the risk of losing her life.

Imprudence After Labor.

Imprudence during the puerperium is also a frequent cause of women's diseases. After a labor at term the womb is six weeks in returning to the normal. In order that this process may proceed uninterruptedly to a perfect conclusion, rest is essential. One of the ill effects, therefore,

of a woman's getting up too soon after childbirth and resuming her household duties, is failure of the womb to diminish in size and to become restored to its original condition; instead it remains enlarged and congested, frequently undergoing a chronic inflammation. At the same time the membrane lining the uterus is rendered more liable to disease and becomes very easily affected. Another danger, when a woman rises too soon after confinement, is that the large and heavy womb is likely to be displaced, especially as the ligaments supporting it have been weakened and stretched. If the abdominal compress is misapplied after labor—placed over the womb instead of above it —it may press this organ backward and thus cause a backward displacement.

Artificial Termination of Pregnancy.

Seldom is pregnancy terminated by artificial means without a long train of diseases following. Frequently the criminal operation ends in death. Chronic invalidism always results. Moreover, in such cases, to the risks of an ordinary miscarriage is always added the danger of blood poisoning.

Unhygienic Marital Relations.

A woman's general health suffers and her generative organs become diseased when the normal

marital relations are disturbed. Excess not only exhausts the nervous system and leads to a condition known as neurasthenia, but it also causes chronic congestion of the organs, with resultant abnormalities and disease. The various methods adopted to prevent conception are all injurious; their traces can be seen in the nervous breakdowns and local diseases that inevitably follow their use.

Personal Purity a Factor.

Personal purity is the chief protection from pus tubes and other chronic and acute conditions having their origin in gonorrhea. Many innocent women, however, are made to suffer and even die for the faults of others. When a young man sows his wild oats, it is usually his future wife who must reap them. For her own protection, therefore, a girl should only marry one known to be free from venereal disease.

Chronic Constipation.

It is a well-known fact that the great majority of women are habitually constipated. Some may not have a passage of the bowels for weeks at a time. The large, hard fecal masses present in the rectum by pressing on the veins coming from the generative organs produce piles, and, by thus in-

terfering with the circulation give rise to congestion of the pelvic organs, and the diseases usually following it. At the same time the poisons in the fecal discharges, that should be expelled from the intestines, are slowly absorbed back into the blood, causing many and varied symptoms and often preventing proper general development.

The regulation of the bowels is largely a matter of habit. Medicines are of little use as a cure, although they may act for a short time. Drugs should never be taken regularly, as they lose their effectiveness with continued use. It is much better for a woman to accustom herself to habits of regularity. A sedentary life without exercise is the most common cause of constipation.

This condition may often be corrected by exercise, as a substitute for which massage of the abdomen may be employed. It is well to drink plenty of water, hot or cold, a glassful on getting up in the morning and another at bedtime being particularly useful.

Attention to diet may itself cure constipation, especially the eating of vegetables, fruits and coarse breads. The vegetables that are most laxative are tomatoes, spinach, lettuce, asparagus, Spanish onions, salsify, cabbage and celery. The coarse cereals, such as oatmeal, cornmeal and

wheaten grits, and bread made of coarse flour, such as Graham, rye, corn, oats and whole wheat meal, also help to relieve constipation, as well as to prevent it. The addition of bran to ordinary flour makes an especially efficacious bread. Nearly all fruits have a laxative influence, which is most marked when they are taken alone. Honey and molasses are better than any medicine. It is well to take fruit, honey or preserves with each meal, or at least with breakfast.

Regularity in habits is probably the most important factor in both preventing and curing this condition.

The Majority of Women's Diseases Preventable.

The enumeration of the causes that give rise to the diseases from which women suffer brings out the important fact that the majority of them are preventable. It shows how false is the idea so prevalent among women that they have an inherent tendency to disease of the generative organs, and are to be considered lucky if they escape. The statement may safely be made that the number of diseases that are unavoidable is small compared with that large number of diseases for which the woman is herself directly responsible. Carelessness and indiscretion, the result usu-

ally of ignorance, cause the greater amount of women's suffering. It is to be hoped that, with a knowledge of the causes of the diseases peculiar to her sex, a woman will be better able to avoid them.

CHAPTER XXIII.

CLOTHING AND POSTURE IN RELATION TO DISEASE.

Underwear. Shoes. Harmfulness of the Ordinary Corset. The Proper Shape for a Corset. Supporting the Skirts. Incorrect Posture. How to Maintain a Proper Position. To Sit and Walk Properly.

Probably the most important factor in preserving health and preventing disease is attention to personal hygiene, by which is meant proper air, eating, drinking, clothing, bathing and exercise and sufficient rest.

Underwear.

Improper clothing is responsible for many diseased conditions, the body frequently being insufficiently protected from cold. Undergarments are often made of unsuitable material and so fashioned that they leave the neck, chest, arms or lower limbs unprotected. Open work stockings, thin slippers, and dresses cut low, leaving the neck and shoulders bare, are by no means uncom-

mon. When a person thus insufficiently clad is exposed to cold, or to a sudden change of temperature, as in leaving a heated ballroom for the cool air of a hall or veranda, or in stepping into the yard from a hot kitchen, the skin becomes chilled and the person "catches cold." In other words, the blood-vessels in the skin contract, driving the blood into the internal organs, and thereby causing them to become congested. The effects of such exposure are much more serious when it occurs during menstruation, as at this time the pelvic organs already contain an excessive amount of blood.

The primary object of clothing is to protect the body from changes in temperature and from moisture. The various materials are selected in accordance with their power of conducting heat and their capacity for absorbing moisture.

The best material for underwear is flannel or wool, as both are poor conductors of heat and good absorbents of moisture. If of a finely combed texture they will not irritate the skin. Silk is as good, but more expensive. When cotton or linen is woven loosely, with large meshes, it preserves the body heat owing to the poor conductivity of the air contained in the meshes.

Stockings are best made of wool, or at least

with woolen feet, in order that they may rapidly absorb the moisture from the feet. They should not fit too snugly, but should be large enough to allow the feet to expand when walking. Stockings deform the feet least when made in rights and lefts with straight inner edges, or, better still, with a separate compartment for the great toe.

Shoes.

The only shoe that does not injure the foot is one with a flat sole, a straight inner edge, a gentle curve on the outer side, and a broad and low heel. When the heels are high, they weaken the arch of the foot by causing a wasting of the muscles and ligaments. A properly fitting shoe is three-fourths of an inch longer than the foot. The latter works forward in walking and unless it is given sufficient room will develop corns and bunions. If too loose, however, the shoe allows the heel to rub. Shoes made of plain leather permit proper ventilation of the feet, but patent leather shoes are impermeable to air and do not allow sufficient evaporation of the perspiration of the feet; consequently the latter should not be worn continuously. It would be even better not to wear them at all. As rubber also will not per-

mit air to pass through it, boots and shoes of this material should not be worn longer than necessary.

The Harmfulness of the Ordinary Corset.

The constriction of the modern female dress, as typified by the corset, does harm in many ways; it interferes with the proper functions of the organs in the chest, abdomen and pelvis. The restriction it causes to the proper expansion of the lungs may in time lead to consumption. It frequently produces slight displacements of the heart, which in consequence often becomes very irritable.

Tight lacing and the suspension of heavy clothing from the waist affect the breathing in still another way by impairing the abdominal respiration. At the same time the abdominal walls are weakened and the abdominal organs are pressed down by this injurious force. The stomach becomes stretched and its digestive powers are interfered with. It, as well as other of the abdominal organs, may be dragged out of place. A chronic dyspepsia results from these changes, involving both the stomach and the intestines, and being associated with chronic constipation and distension of the bowels. The wearing of tight

corsets has even led in some cases to the occurrence of appendicitis.

Compression exerts no less serious an effect on the pelvic organs. It may cause the womb to be displaced backward and downward, and, through interference with its circulation, to become chronically congested and later become the seat of other and more serious disorders. The ovaries and Fallopian tubes are likewise crowded out of their normal position by tight lacing. During pregnancy, constriction of the abdomen may produce a miscarriage or may affect the shape and position of the child; it always renders the occurrence of varicose veins more likely during this period, as also does the wearing of circular garters.

Many styles of corsets throw the body into an unnatural position, imposing a strain on the muscles and ligaments of the back and hips with resulting weakness and backache. Much of the so-called "kidney trouble," "womb trouble," lumbago and sciatica, from which women believe they suffer, is in reality a strain caused by this faulty position. As demonstrated by Drs. Reynolds and Lovett, of Boston, the corsets that almost always produce backache are those that are long behind (especially at the top) and short

in front (especially at the bottom) and curve in markedly at the waist in front. They exert their greatest pressure at the waist, and at top and bottom press only against the wearer's back. These throw the hips back and destroy the center of gravity.

The Proper Shape for a Corset.

The corset that does least harm is one that is short behind (especially at the top) and relatively long in front (especially at the bottom). It should fit the wearer tightly around the hips and decrease regularly in pressure to its upper edge where it should be very loose (especially behind). The proper corset is curved in considerably at the waist line at the back and sides, but shows no waist curve in front. Three other points are important. It is essential that the more important seams run diagonally forward and downward in order to secure the proper lines of strain in the cloth. The bones which serve to keep the corset from wrinkling should run in such directions as not to interfere with these strains.

Before putting on the corset all the lacing must be widely loosened. The corset is then settled into place as low as it can be worn, and clasped. Passing her hand inside the corset the woman

then lifts her abdomen into it, settling the front of the corset as low as possible. The middle lacing should be pulled comfortably snug, the lowest lacing being then made as tight as can be borne. The upper lacing is left as loose as is comfortable.

Supporting the Skirts.

It is injurious to support heavy skirts from the waist or hips. They should instead be suspended from the shoulders by means of suspenders or a waist. If the pressure, however, be exerted on the outer portion of the shoulder, especially in growing girls, it produces round shoulders. This deformity is particularly likely to occur when the girl is weak or poorly developed, and may persist throughout life. A waist has been devised by Dr. Goldthwait, of Boston, in which the weight of the clothes is applied to the rigid or inner part of the shoulder at the base of the neck, which can bear any amount without lowering of the shoulder. If this waist were worn from early childhood up, much of the round shoulder deformity seen in growing girls would be averted.

Incorrect Posture.

Much suffering results from incorrect positions of sitting and standing. When the spine is not

held erect, with its double curve preserved, undue strain falls on the muscles and ligaments of the back, especially the lower portion, with resultant strain and disability. At the same time the abdominal muscles become relaxed, causing loss of support to the organs of digestion, which frequently drop, with the development of indigestion, nervousness and constipation.

How to Maintain a Proper Position.

In standing, a woman should place her feet almost parallel, the heels being one to six inches apart, as may be easiest, the toes turning outward a little, as is most natural and comfortable for the individual, and let her arms hang easily by her sides. When the chest is drawn up to a high position, all the other parts of the body naturally fall into their proper relations with it. The weight of the body should be thrown forward on the ball of the foot and toes, rather than on the heel. This position sometimes is assumed more easily if one endeavors to pull up the crown of the head, or to keep the neck pressed back against the collar.

The ease and balance of this position may be tested by rising on the toes as far as possible, maintaining the position for a moment, and com-

ing down gently until the heels touch the floor. When this can be done without losing the balance, the proper position has been assumed; but if the person has to take a step forward or backward to recover her equilibrium, the center of gravity is misplaced and the position must be resumed until, after a few attempts, the proper position is found and kept. In this position the shoulders, hips and ankles will be in a straight line. The correct carriage may be tested by passing the hand over the back; if the ends of the shoulder-blades can be felt, the carriage is correct.

To Sit and Walk Properly.

A girl should sit on the whole seat of a chair, not just on the edge. When she is seated back on a properly fitting chair, the seat supports about three-fourths of her thigh, while her feet rest easily on the floor, or on a footstool, if the chair is too high. The erect position is maintained by drawing up the crown of the head.

Harm is done by lounging in a chair or allowing one's self to flop. If too fatigued to sit straight a woman should lie down until she is rested. It is injurious to sit in a chair resting on one foot, or leaning the head upon the hand, or bending the head forward or stooping at the

shoulders. One should always lean forward from the hips and not from the waist. Unless proper postures are maintained, no amount of exercise can overcome the deformities that will be produced.

In walking, the correct standing position is first assumed, with the chin up, the chest forward, and the abdomen in. The shoulders will then fall into their proper position and not have to be pushed back. In walking up stairs a girl should hold herself erect, keeping the back, neck and head in a straight line. She should not bend forward in passing from step to step, nor run up stairs, but should place each foot flat on the step, taking deep breaths as she slowly ascends. She may walk down stairs very gracefully by not springing upon the steps, but by bending the knees and dropping the weight from step to step with as little motion as possible.

CHAPTER XXIV.

THE ROLE OF AIR, FOOD, BATHING, EXERCISE, REST AND RECREATION IN MAINTAINING ONE'S HEALTH.

Fresh Air. Food. The Cleansing Bath. The Cold, Hygienic, or Hardening Bath. Exercise. The Necessity for Rest and Recreation.

Like any other delicate mechanism, the human body requires intelligent care if it is to endure, remain in good condition, and retain its full efficiency. But unlike the inanimate machine, whose parts are only replaced at long intervals when worn out, the tissues of the body are continually being used up and renewed. Food and air furnish the material for replenishing them. Repair goes on chiefly during rest and sleep. It is mainly during work and exercise that the tissues are used up. These and other subjects naturally demand consideration if health is to be preserved.

Fresh Air.

The oxygen needed to keep the tissues in good condition and able to resist disease is found only

in pure air. An atmosphere laden with the poisons exhaled from the lungs is not fit to breathe. Proper ventilation consists in allowing the foul air to escape and the fresh air to enter an apartment continually. This is necessary in living rooms, but especially so in the bedroom. One should sleep with the windows open, top and bottom, as far as they will go. Only pure air then will enter the lungs. The bed clothes protect the body from the cold just as effectively as does the clothing when one is out of doors. In neither instance is cold air on the face unpleasant or harmful.

It is just as important to breathe fresh air at one's work as at home. One should insist, therefore, on proper ventilation in office, factory and store.

In cold weather direct currents of air are objectionable in living rooms. Draughts can always be avoided by placing under the lower window sash a board from four to six inches wide, or by utilizing some other simple expedient.

Food.

Improper food has its share in causing disease. To keep the body strong and well, so as to be able to combat disease, good nourishing food is

required. Many painful conditions of the generative organs, moreover, are due to an impoverished state of the blood caused by malnutrition. It is important, therefore, for every woman to eat a sufficient amount of good food properly prepared. It has been said that the American woman in the rural districts is half starved, not because she does not get enough to eat, but because she does not eat the kind of food that makes rich blood and tends to build up the tissues of the body. The farmer's wife, for instance, instead of being stout and of good color, is often pale and thin. This is in part due to the too frequent use of the frying pan, to the eating of salt fish and meats instead of fresh foods, to the drinking of coffee and tea instead of milk and cocoa, and, above all, to the constant presence on the table of pies and hot bread. In the large cities, on the other hand, many women eat too much, and in consequence develop dyspepsia, constipation, and allied disorders, the late eating and drinking among the fashionable people being productive of much chronic trouble.

The necessary constituents for a perfect food are provided in the most digestible form by a mixed diet, which contains both vegetable and animal food, the best ratio being one part of raw

animal food to three parts of raw vegetable food. A person doing hard muscular work, however, requires a larger amount of vegetable food than one who leads a sedentary life.

It is important to allow sufficient time for meals. The hasty midday lunch of shop girls is one of the most frequent causes of indigestion. There should be an intermission of at least one hour in the middle of the day, part of which should be devoted, both before and after eating, to rest or pleasant conversation. If one has but little time for the midday meal it is better to take a very light lunch, or even only a plate of soup and a glass of milk with a few crackers, than to gulp down a more substantial dinner. On the other hand, the habit of going without the midday meal is most pernicious.

The Warm Cleansing Bath.

The outer skin is constantly being shed in the form of dead, dry scales, while the oil glands deposit grease on its surface. Both the scales and the grease tend to collect on the skin and, with or without dirt, to form a coating which stops up the mouths of the tubes from the sweat glands, the "pores," thus preventing the proper functions of these glands. To remove this accumulation,

which may be so fine as to be almost unnoticeable, a cleansing bath is necessary.

Warm and temperate baths are best suited to secure cleanliness. As water alone cannot dissolve the grease upon the skin, the use of a pure soap is required. Warm baths should not be taken within two hours after a meal. As heat relaxes the blood-vessels in the skin, a person is liable to take cold after a warm bath unless she goes immediately to bed, thus preventing exposure, or else takes a cold sponge or shower, followed by brisk rubbing, which restores tone to the blood-vessels, thus causing the skin to return to its normal condition.

The Cold, Hygienic, or Hardening Bath.

A cold bath followed by brisk rubbing stimulates the whole system and by accustoming the blood-vessels of the skin to variations of temperature, hardens the body against catching cold.

When the cold water comes in contact with the skin, the blood-vessels of the skin contract. Later, the time depending upon the reactive ability of the individual, these same blood-vessels dilate and thus allow the circulation in the skin of a greater amount of blood than before. This is called the reaction, which consists in the restoration to the

skin of the heat that has been abstracted. It is the most important element in all cold applications. The benefit of the cold bath comes from this reaction, or glow, or feeling of warmth, that follows it.

A person not accustomed to cold bathing usually requires a brisk rubbing for several minutes after the bath to produce this reaction. As one becomes accustomed to the cold bath, however, the reaction occurs more and more quickly, requiring less and less rubbing, until finally it may occur as soon as the cold water strikes the body. The reaction is promoted or increased by supplying heat to the body before the bath by means of a hot tub or sponge bath or a brisk rub, by active exercise during or after the bath, or by the administration of stimulants either before or after the bath.

The commonest forms of the cold bath are the full tub bath, also known as the plunge or dip, the shower bath and the sponge bath. Everybody is able to take a cold bath, but everyone cannot at once, without having been accustomed to it, take the same kind of a cold bath. Yet all, except the very old, can be trained so as to be able to take any form of the cold bath with benefit and without discomfort.

The best time for taking a cold bath is immediately upon rising, while one is still warm from the bed. Before the cold bath is taken, the face and head should be wet with cold water to prevent the blood rushing to the head. After every kind of a cold bath it is essential that a complete reaction take place, in other words, that the person become red and warm. If a woman feels chilly after the bath and does not become warm after brisk rubbing, she should go to bed until she has reacted, after which she may get dressed. There is no danger of taking cold after the bath if reaction occurs, as the warm blood coursing through the dilated vessels in the skin acts as a protection to the body. One can go out into the open air immediately after a cold bath that has been followed by a good reaction.

Exercise.

The majority of women fail to realize how essential to health is daily exercise in the open air and they neglect this important means of keeping the muscles and internal organs in a normal condition. In the cities many of the girls and younger women indulge in various sports, such as golf, tennis, bowling, rowing, and so forth, but others, especially the older women, remain

indoors, confining themselves to the close atmosphere of the house, seldom engaging in any work or play involving the least exertion. In the country districts women commonly take even less exercise than they do in the city; the farmer's wife and daughter spend most of their time in stuffy and overheated rooms. Those who neglect to take sufficient exercise often suffer in consequence from obesity, loss of appetite, indigestion, chronic constipation, ill-defined pains and menstrual irregularities.

On the other hand, if the exercise be excessive, or be indulged in at the wrong time, it may itself lead to conditions of ill health. During the menstrual period a woman should avoid all exercise and consequently should not indulge in violent games, in dancing or in surf bathing. Violent exertion of any kind is always dangerous to a pregnant woman.

Even housework may be utilized in developing the figure, if attention be paid to the positions assumed. When sitting at any kind of work, such as sewing or paring apples, a woman should avoid the temptation to stoop. It is so easy to curve the back and shoulders and on getting up forget to straighten out again. After several years of such bad habits the shoulders will be

round, the head protruding, the neck thin and the chest flat and narrow. It is important to maintain the proper erect posture when standing at one's work. Kneading bread, with the shoulders thrown back, will develop splendid arm muscles, provided the moulding-board be at the proper height. One of the best physical exercises and one that gives the shoulders splendid development is the old-fashioned scrubbing on hands and knees. One must remember, however, to keep the back straight, the chest forward and the abdomen drawn in. It is well to develop both sides equally by first using one hand and then the other. Likewise when sweeping, the broom should be changed from side to side to prevent one-sided development. The same principle may be applied to ironing, it being most important to have the ironing-board at a comfortable height.

One should be properly dressed for housework. The best costume consists of a loose flannel blouse, with the collar loose and low, and a short skirt made like a gymnasium suit. Corsets and high-heeled slippers are entirely out of place.

The Necessity for Rest and Recreation.

Many nervous disorders are due largely to women not taking sufficient rest. Young girls

frequently go out night after night during a whole winter's gay season, coming home from a dance often at four or five o'clock in the morning. With the using up of the nervous energy which she needs for resisting disease, a society woman frequently becomes the prey of various disorders. Nor is the society woman the only offender. Many working girls, after standing before a loom or behind a counter from early morning till sundown, will go out again after supper and will not return until late at night. The mother of a large family after a hard day's work often sits up until midnight sewing. It is no wonder, therefore, that with this waste of her vital force, a woman loses her inborn vitality to combat disease and soon succumbs to one of the many diseases peculiar to her sex.

It is important for a woman to be able to relax at intervals. When the eyes are steadily engaged in near work they should be rested every half hour or every hour during the day by being made to look off into the distance for a moment or two. It is well to relax the mind in the same way by now and then ceasing thoughts of one's work and for a moment recalling something pleasant that has been seen, read or noticed.

An overworked mind often finds rest in pleas-

ant conversation, in cheerful games which are not too intricate, in seeing plays and moving pictures and hearing operas and concerts, in reading pleasant books and in the cultivation of fads. A hobby, such as the collection of stamps, rare prints, old coins, old china, old furniture, and the like, furnishes an agreeable diversion by taking one's mind off the daily worries. On the other hand, recreation involving some mental labor may be of advantage to a person whose work is physical and whose mind is little exercised. For her, chess-playing is an interesting diversion and even Sunday-school teaching may prove beneficial. Such forms of recreation, however, are injurious to one whose mind is constantly on a strain, such as a public school teacher.

In the middle of the day a rest from work of at least one hour is essential, so that time will be allowed for half an hour's freedom from work after luncheon. This time is best spent by those who have been standing all morning in reclining, and by those who have been sitting in walking in the open air. A person employed in manual labor may spend this time in reading, but a brain worker will be more benefited by mental rest.

At the end of each week a woman should rest for at least twenty-four hours. Once a year, too,

she requires a complete rest of not less than two weeks, taken preferably in the summer. This vacation restores the weakened muscles and digestive organs to their normal healthy condition after the close strain of the winter's work.

Eight hours of continuous sleep each day is usually sufficient for the average adult. Children require much more, while aged persons do not need quite so much. Persons who have to rise early during the week would do well to lie in bed longer on the day of rest.

CHAPTER XXV.

THE TEMPORARY RELIEF OF SYMPTOMS.

Emergencies. Temporary Treatment of Pain. Headache. Backache. Abdominal Pain. A White Vaginal Discharge. A Yellow Discharge. A Bloody Discharge. Danger in Patent Medicines.

It is in preventing disease that a woman can utilize what knowledge of hygiene she possesses. When once the disease has occurred, the advice of a competent physician must always be sought. On the first evidence of anything being wrong, therefore, a woman should consult a reliable physician. No one but a trained physician has the ability to recognize what condition is present, and none other can advise the appropriate treatment. An enumeration of the symptoms that arise from disease of the generative organs would merely serve to make a woman introspective and apprehensive, without rendering her capable of properly interpreting any symptoms she might notice in herself.

But it is a great mistake for a woman to be

continually on the lookout for symptoms; she should not always be examining herself to ascertain if she is normal. Such a practice produces a nervous disorder, a condition bordering on insanity, known as hypochondriasis or morbid introspection. As any description of symptoms has a tendency to make hypochondriacs of its readers, such has been avoided in this book as much as possible. Only in the case of danger signals, when the life of a woman depends upon her early recognition of the first warnings, have the symptoms been fully described.

Emergencies.

It is not always possible, especially in the country, to procure a doctor at a moment's notice. In such a case a woman may have to suffer for hours, unless she is able to obtain temporary relief. For these emergencies, when no physician is available, it is important for the woman to know what is to be done. This chapter will tell how, in the absence of medical advice, the various symptoms that may occur can be temporarily relieved. But whether or not she put those suggestions into practice, a woman should always place herself under the care of her physician. Though the application of the home remedy cause the symptoms

temporarily to disappear, the diseased condition that produced them may still remain and even continue to grow progressively worse. When a woman puts herself under a doctor's care she must faithfully follow his directions. The physician in attendance is familiar with the actual conditions present, and he knows best what should be done. Any suggestions as to treatment that might appear in a book such as this would be superfluous to a woman who is under competent medical supervision. On the other hand, the sufferer who has foolishly put off seeking professional advice might be led to still further postpone this necessary action, should she read of any methods of treatment. Many women die before their time because, instead of going at once to their family practitioner, they try a certain patent medicine or adopt some gratuitous suggestion of a well-meaning but ignorant neighbor, until finally the disease has acquired such a hold that a cure is no longer possible.

Temporary Treatment of Pain.

Pain is Nature's notification or warning that an abnormal condition is present. It is the condition causing the pain that is to be investigated and removed by treatment. For this the services

of a physician are required. Although the pain itself is seldom treated, yet there are times when it is so severe that something must be done to relieve it. As on such occasions a physician is not always within reach, it is important for a woman to be familiar with various expedients which may be tried before the doctor arrives. The procedures given in this chapter are of a temporary nature and only relieve the pain; they do not cure the condition producing it.

The measures adopted for the relief of pain depend to some extent upon its location.

Headache.

Headache is frequently benefited by a cooling compress, consisting of a handkerchief or cloth tied across the forehead and kept cold by being repeatedly wrung out of cold or ice water. The compress is never allowed to become warm, being dipped in the cold water at frequent intervals.

When this fails to relieve the headache, or tends to increase it, the stimulating cold compress may be tried. Several folds of muslin or linen—a handkerchief will answer—are wrung out of cold water and applied to the forehead. Over this a band of flannel is placed, extending for an inch above and below it, and reaching around the

head, being tied, or fastened with pins. The inside linen bandage will soon become warm, but it is not to be disturbed for at least an hour. It may then again be dipped in cold water and the bandage applied as before.

Where both the cooling and the stimulating cold compress fail to give relief, a hot compress, or towel wrung out of hot water, may be tied around the head, or a menthol pencil may be rubbed over the temples and brows. A hot foot-bath, with or without mustard, or a hot or cold hip-bath or sitz-bath will often draw the blood from the head and thus relieve the headache. In every case a cathartic is indicated; often it alone will work a cure.

In every case, especially when the headaches always come while the eyes are being used for near work, such as reading, writing or sewing, the eyes should be examined by a competent oculist (not optician).

Attention to hygienic rules, especially those in regard to work, rest, recreation and exercise, will aid largely in banishing headaches, which often are due to impoverished blood, overwork and lack of proper exercise, fresh air and sunlight. A general tired, languid, sleepy feeling, or a dull ache in the head, will frequently disappear after a

brisk walk or a game of tennis or tether ball. A woman subject to headaches should always consult a physician.

Backache.

Pain in the back is not normal, although it is experienced by so many women. It may be due to displacement of the womb, to a tear, to a movable kidney, to rheumatism, or to other conditions. In every case an examination by a physician is advisable.

Backache is frequently caused by an improper mode of standing. Instead of the spine being held erect, the shoulders are pulled back and the abdomen thrown forward, which position imposes a strain on the muscles of the back. Another common cause of backache is the corset that is long behind and short and curved in at the waist in front.

Pain in the back may be temporarily treated by local heat or cold, by massage or rubbing, or by counter-irritation with iodine or plasters. The latter sometimes give support to the back when the muscles or ligaments are strained. In such cases a tight bandage about the hips or a small hard pillow placed in the small of the back just above the hips will often afford relief. An ab-

dominal bandage may prove of service when the pain is due to dropping of one or more of the abdominal organs and also in cases of strain. The substitution of a straight front corset for the improper kind frequently results in the disappearance of the backache.

Abdominal Pains.

Pain in the abdomen may be benefited by local heat, applied by means of a hot-water bag or cloths wrung out of hot water, to which sometimes a teaspoonful of turpentine is added. A hot poultice of flaxseed or other material often soothes the pain. In cases where heat only increases the suffering, cold may be applied, usually in the form of an ice bag. When the abdomen is pendulous and lacks support, the pain may be due to a dropping of one or more of the organs. In such cases with the wearing of an abdominal elastic bandage the pain often disappears. This sagging of the abdomen may often be prevented if a woman holds herself properly. When attacked with severe abdominal pain a woman should at once go to bed and send for the doctor.

If the pain seems to be in the lower portion of the abdomen, or in the pelvis, it may sometimes

be relieved by heat applied to the parts internally by means of a vaginal douche, also known as an injection. A fountain syringe is filled with water as hot as can be borne, to which ordinary table salt has been added in the proportion of a teaspoonful to a pint. The bag should be hung low, so as to let the water run out slowly. The heat supplied by the water is what does the good; consequently the longer the injection lasts the better. A douche-pan or other receptacle is required to receive the water as it leaves the parts.

A woman should regard as a danger signal of sufficient importance to warrant the immediate summoning of a physician, the occurrence of pain in the abdomen when severe and localized to one spot, or when associated with prostration, marked pallor, great abdominal tenderness, or chills and fever.

A White Vaginal Discharge.

Discharges from the vagina are of three kinds, white, yellow, and bloody. They may have little or grave significance. A physician should always be consulted to find out the cause and to prescribe the treatment.

A white discharge, or leucorrhea, may be due to an acute or chronic inflammation of the neck

of the womb, the glands being congested and secreting a large amount of mucus, which finds its way externally. Leucorrhea, as a rule, is caused by some local or general condition. Its most common cause is a tear in the neck of the womb, which sets up an inflammation. It occurs also when the uterus is displaced or bent into an abnormal position and also when after labor or miscarriage it fails to contract to its normal size. The use of frequent douches of cold water to prevent conception is said to produce it. An obstinate form is sometimes due to gonorrhea. In women with a tendency to consumption a white discharge is common, its severity depending entirely upon the general health. Leucorrhea may also be due to seat-worms, or to syphilis.

The condition in many cases, especially where it occurs in young girls, is caused by a general state of ill health; in every instance the severity depends upon the general health. The leucorrhea may occur only at those times when the general health is impaired by overwork, anxiety, or by any other cause, and even when apparently cured, it is apt to reappear whenever the woman is subjected to such depressing influences.

A physician must determine the cause. If the discharge be due to a displacement of the uterus

or to a tear in the neck of that organ, it will not be cured until the tear is repaired or the womb put back in position. In some cases local treatment by the physician will be required. Hot douches usually aid in hastening the cure and, in the absence of a local cause, will be the only local treatment required. In most cases the physician will prescribe a tonic. The bowels must always be kept regular. When seat-worms are the cause, their removal effects a cure.

In every case, whether the discharge is due to a general state of poor health or to a definite local cause, general hygienic measures are always necessary.

A Yellow Discharge.

The occurrence of a yellow discharge should receive immediate medical attention. It usually signifies gonorrhea, which in women is a very serious affection, being responsible for a large percentage of her pelvic troubles.

A Bloody Discharge.

At any other time than the menstrual period, a bloody flow is to be viewed with concern. A physician should always be consulted without delay.

Increase in the amount of blood lost at the menstrual period and slight bleeding in the interval, occurring in women over thirty years of age, demand immediate and careful examination. They may indicate something very serious. Any bleeding from the vagina in a woman who has passed the menopause, or change of life, should arouse the gravest suspicion and be reported at once to the physician. Many dangerous and often fatal maladies begin in this way.

Danger in Patent Medicines.

Thousands of women to-day are ruining their health by taking patent medicines. These seemingly innocent remedies, often labelled "harmless," frequently contain the most dangerous drugs. Few of the States have laws preventing the sale of such poisons, despite the fact that in many instances coroners' verdicts have ascribed the cause of death to their use. The makers of the patent medicines advertise in the daily newspapers, guaranteeing to cure every disease known to mankind. These advertisements are so cunningly and so attractively worded that a woman is deceived by their falsehoods and wastes her money on these harmful potions. After taking a bottle and finding her pain relieved by the opium

it contains, and her strength seemingly restored by the alcohol which forms its chief ingredient, she imagines that she is on the road to recovery. Then bottle after bottle is consumed, while the disease grows progressively worse without attracting the woman's notice, so well are its symptoms masked by the patent medicines. When at last the victim discovers her mistake, she too often is beyond all cure.

The advertisements usually describe little aches and pains that are of no consequence, and state that they are symptoms of a serious disease which can best be cured by the use of the patent medicine recommended. Women in perfect health are thereby led to imagine that their organs are diseased, and thus acquire the drug-taking habit. There are hundreds of "sure cures for consumption" on the market, although the makers of these so-called "cures" well know that fresh air, good food, and proper hygienic living, alone will cure this disease. Most of these "consumption cures" contain chloroform and opium which may check or ease the cough, but which hasten the progress of the disease and shorten the life of the sufferer.

Alcohol is the drug most commonly used in patent medicines. Most of the whiskey-cures contain it in very large quantities. The various

"tonics," "sarsaparillas," "vegetable compounds," "celery compounds," "bitters," etc., contain as a rule more alcohol than is found in many intoxicating beverages. Beer, ale, stout and porter, for instance, average from three to eight per cent. of alcohol; a well-known patent medicine contains twenty-eight per cent. The alcohol in claret is nine per cent.; in a much advertised sarsaparilla it is twenty-six per cent.

The most dangerous of all the patent medicines, however, are the headache powders. The majority of these contain a poison known as acetanilid, which has an injurious effect on the heart. Frequently after taking one of the powders a woman becomes faint and weak, her lips turn blue, her hands feel cold. In several instances death has shortly followed. In one case an eighteen-year-old girl went to a drug store for something to relieve her headache and was given a box of headache powders which are extensively advertised on sign boards and in street cars. As is usual with such patent medicines, there was nothing on the label to warn her of the dangerous nature of the drugs they contained. On the contrary the claim was made that the medicine not only was harmless but strengthened the heart and produced better blood. The girl followed the

printed directions and took two powders. In three hours she was dead.

Often the heart of one who makes a practice of taking headache powders does not give way at once, but becomes weaker very gradually without causing noticeable symptoms, until during an attack of the grip or some other disease it is unable to stand the extra strain and then suddenly gives out.

Cocaine is a drug which cannot be purchased from the apothecary under its own name, but which may easily be procured in a patent medicine. Most all the "catarrh powders" and "catarrh cures" contain cocaine and consequently are harmful. The cocaine habit has often been formed by taking catarrh cures.

In any illness the important fact for every woman to remember is that patent medicines as a rule are all dangerous. They may ease the pain, check the cough, or produce a temporary stimulation which gives a false impression of increased strength, but they never cure the disease. They merely mask or hide the symptoms for the time being. On the other hand they frequently do harm, causing the formation of drug habits, injuring the heart and sometimes even producing death.

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